University of Cape Town

Faculty of Humanities

School of Education

Tools for learning: a socio-cultural analysis of pedagogy in early reading competency

By

Giulietta Harrison (JCBGIU001)

harrisongiulietta@gmail.com

Supervisors:

Dr A. Muthivhi & Dr J. Hardman

Acknowledgements

I would like to express my appreciation and gratitude towards all the people who have helped me to deepen my knowledge of how children learn and how best to teach them. I have been privileged to have the support of a number of academics who have guided my thinking, commented critically and given generously of their time. These include my supervisors, Dr Azwinhangwisi Muthivhi, Dr Joanne Hardman, my PhD mentor, Dr Anna Crowe, and fellow academic Anya Morris. All helped to make this journey an exciting and meaningful one.

This thesis would not have been possible without the support of the principals, teachers and learners who so willingly engaged in this research project. I appreciate that it is never easy to invite researchers into a classroom and to be open to observation and discussion. Many of the teachers gave up valuable time in the afternoons and shifted their daily programmes to accommodate my work. Each learner happily responded to the literacy tests and in typical foundation-phase fashion, shared their daily lives without reservation. Their honesty added value to this research.

I owe a deep debt of gratitude to my husband, James Harrison who, through our many discussions, enabled me to shape my thinking. His support and strength in the final stages of this thesis were invaluable. My children, Francis and Ines, are warmly thanked for encouraging me to continue my academic journey.

The first two years of study were made possible with financial support from bursaries. In this regard I would like to thank SPADE, Dorothy Spillman and the NRF free-standing bursary.

Abstract

This research aimed to understand how children learn to read and how best to facilitate early reading competencies. It examined pedagogic styles through a socio-cultural lens with a view to describing what currently yields results in South African Grade One classrooms. The participants were Grade One educators in both former Model C[1] schools and less privileged schools. This multiple case-study comprised a research demographic of 126 learners, 14 teachers and five schools.

Use was made of a basal reading test, comprehension test, problem-solving test, film observations of teachers giving lessons, and teacher interviews. A coding schedule was designed to facilitate the analysis of pedagogic modes as observed in the film footage. The pedagogic modes were determined from a pilot study and the use of a Vygotskian framework. Ten modes were identified: use of existing knowledge, practicing a concept, collaborative learning, conscious mediation, use of the ZPD, scaffolded learning, rote learning, worksheet-based learning, ability-group teaching and didactic teaching. The first six modes are Vygotskian in nature, of which the first four were the most frequently used. Qualitative analysis of teacher interviews, together with a quantitative analysis of pedagogic modes, permitted comparison of what teachers said with what they did in their classrooms. A stratified sample of nine learners per teacher evidenced a significant improvement between the pre- and post-tests of literacy. Cross analysis of learner test results with pedagogic modes showed that collaborative learning was an effective tool for mediation.

This research showed that use of Vygotskian principles was not fully developed. Some of the challenges faced in South African classrooms were revealed. Despite these challenges, learners did progress, even in underprivileged circumstances. A central message that emerged

[1] During the Apartheid era, schools that were exclusively available to white children were known as 'Model C' schools, but with democracy, when they became multi-racial, they became known as 'Former Model C' schools.

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is that learners' individual strengths and weaknesses are not adequately identified or catered for in Grade One classrooms, and their teachers need support in acquiring the skills to do so.

DECLARATION

The thesis *Tools for learning: a socio-cultural analysis of pedagogy in early reading competency,* contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgement has been made.

Signature:

Signed by candidate

Signature Removed

Giulietta Domenica Harrison

Date: 15 August 2014

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Abbreviations

ANA	Annual National Assessments
CAPS	Curriculum and Assessment Policy Statement
CLE	Concentrated Learning Encounter
DBE	Department of Basic Education
DoE	Department of Education
EAL	English Additional Language
ECD	Early Childhood Development
ELoLT	English as the Language of Learning and Teaching
LiEP	Language in Education Policy
LOLT	Language of Learning and Teaching
LRRL	Learning to read, reading to learn
NCS	National Curriculum Statement
NLS	New Literacy Studies
OBE	Outcomes Based Education
PIRLS	Progress in International Reading Literacy Study
PRP	Primary Reading Programme
RNCS	Revised National Curriculum Statement
RR	Reading Recovery
SACMEQ	Southern African Consortium for Monitoring Educational Quality
SMILE	St Mary's Interactive Learning Experience
TIMSS	Trends in International Mathematics and Science Study
VRP	Vacation Reading Programme
ZPD	Zone of Proximal Development

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1. Introduction[2]

South Africa faces an educational crisis that has seen it placed last, internationally, on tests of numeracy (TIMSS 2011) and placed poorly on tests of literacy (Howie, Venter & Van Staden, 2008). While international research indicates the importance of acquiring literacy and numeracy skills in the foundation phase (Grades 1-3), there is little research in South Africa into current pedagogical practices at this level of schooling. The purpose of this case study is to contribute a theoretically informed investigation of pedagogic practices when teaching Grade One reading, developed from Vygotskian models of developmentally-orientated teaching and learning. By literacy skills it is meant learners' ability to acquire tools for learning that enable them to read with comprehension and to discuss texts effectively.

A Vygotskian theoretical framework was chosen because Vygotsky is widely recognized as a theorist who is concerned with learning as a social and liberating force (Cole, 1996; Dixon-Krauss, 1996; Hedegaard, 2001; Stetsenko, 2012). In the context of South Africa's relatively new democracy, it has been recognized that education is a force for change (Fleish, 2011). Previous analysis of how children learn tended to place the emphasis on the work of Jean Piaget. It is no longer necessary to choose between Piaget and Vygotsky as both bring valuable insights into a body of knowledge that continues to evolve (Muthivhi & Broom, 2009). Vygotsky, however, provides the researcher with an understanding of pedagogical practice that is particularly relevant to this research and the contexts of teaching and learning.

[2] This thesis makes use of APA version 5.

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1.1 Background and rationale

The pervasive problem of reading efficacy in South African primary schools motivates the need to contribute to possible solutions to our low literacy rates (PIRLS, 2011). As government continues to grapple with the issues of how to improve foundation education, particularly literacy and numeracy, it has become increasingly important to understand how children learn, and to provide educators with tools necessary to facilitate reading. Reading is an essential skill for academic success, but current pedagogic practice is not answering the needs of learners, and teachers express frustration at not being able to succeed in the classroom (Lemmer, Meier & Van Wyk, 2012). If we can understand how children learn to read, and the most appropriate ways to facilitate learning, we can inform pedagogic practice.

To understand how best to serve the needs of our present ways of schooling, we must see child development as all encompassing (Rogoff, 1990). Therefore we must take into account learners' cultural-historical background, their natural ways of learning, as suggested by Vygotsky, and the transformative nature of what we are trying to teach. By adopting the theory-practice-theory approach, as suggested by Stetsenko and Vianna (2009), we can begin to meet the needs of our learners through conscious evaluation of current pedagogic practices against a backdrop of socio-cultural theory.

> A theory which welcomes multiple points of view also welcomes developmental discontinuities and multiple representations as a natural consequence of the social construction of knowledge. Without falling into the trap of believing that knowledge is simply transmitted from one generation to another, a theory of cognitive change can see the powerful influence of cultural knowledge. The construction of knowledge in the ZPD remains open to creative changes which build on the culture's history. (Newman, Griffin & Cole, 1989, p. 136)

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Exploring the "creative changes" presented by Vygotsky's theory of the Zone of proximal development (ZPD), the distance between assisted and unassisted performance, presents an opportunity to find some solutions to the issue of how to improve literacy results in South African schools. It is here, in this space opened up by the teacher and student that mediation, structured guidance, can move a child developmentally. This is important if we are to bring about transformation at multiple levels as suggested by Stetsenko (2012) who posited that human education should no longer be seen as a way to triumph over nature or to achieve economic empowerment, but rather to acknowledge that teaching is a fundamentally transformative act and that it is within Vygotsky's ZPD that teachers can "co-author a common history" between themselves and their learners (p. 152). However before one can propose changes to pedagogic practices, it is important to study current practices to understand what is happening in classrooms. This is the basis of this project.

Applying a Vygotskian framework to mediation of self-regulation in a preschool in the Western Cape, confirmed the efficacy of scaffolded collaborative learning (Harrison, 2011). Emotional competency, problem-solving and organizational skills were the three areas of self-regulation that were tested in the context of a popular children's story. The premise of mediation is that children will learn more with structured, guided assistance, than they can learn on their own. Learners were given opportunities to practice and internalize new knowledge with the help of their peers and educator. The primary tool of mediation was language, with learners being given the language of self-regulation. This research demonstrated how implementing the theory of Vygotsky's ZPD can lead to improved practice on the part of an educator, effective internalization of new learning in learners, and evaluation of Vygotsky's theory with a view to determining ways of teaching more effectively. A culturally appropriate and consciously mediated teaching and learning environment allowed learners to develop the motivation to tackle challenging tasks such as data capture and story-

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telling (Harrison 2011). Scaffolding activities into easily digestible steps improved performance, and providing opportunities for constructive play enhanced development of language and social skills. It is clear, therefore, that this approach to teaching has potential to facilitate the establishment of a solid foundation in literacy.

This research informs the researcher's desire to investigate how reading is taught and conversely acquired, in foundation-phase classrooms. Having experienced how learners can benefit from a socio-cultural approach to teaching and learning by developing their metacognitive capacities, the objective was to understand literacy development by exploring how teachers in Grade One make literacy available to learners, what outcomes were being achieved, and whether pedagogic practices differ across classroom contexts.

1.2 Statement of the problem

> To conceptualize learning within the cultural-historical tradition, learning has to be related to tool use, guided by teaching and related to the institutional activities in which the children participate. (Hedegaard, 2001, p. 5)

According to Hedgaard (2001), children in the school environment are specifically directed towards mastering skills that characterize the adult world and express a desire to acquire skills in reading and writing which becomes a dominant motive for learning. Understanding how children learn and finding tools to assist teachers to teach, and children to learn, is of paramount importance because South African primary education is currently going through a crisis period, particularly pertaining to underperformance in reading (Bloch, 2006). Learners in foundation-phase classrooms do not seem to be acquiring the reading skills which are essential to their academic performance (Pretorius, 2000). This suggests that the ways in which teaching is taking place are problematic as children appear to not be learning to read (Fleisch, 2008). However, as Jordaan (2011) indicated, there is little research into how

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reading is taught at foundation phase in South African classrooms. The problem of understanding current approaches to literacy acquisition underlies the impetus for the current study.

Fleisch (2008) put forward the notion that, while the empirical evidence is incomplete, studies show that teachers' knowledge of content and methods of instruction are problematic. He explained that poor pedagogic practice has led to disadvantaged schools having low expectations of their learners and either ignoring or using the curriculum inappropriately. Historically, the apartheid legacy may have resulted in teachers adopting a pedagogic style that favours rote learning and teacher-centred instruction (Donald, Condy & Forrester, 2003). By placing the emphasis on only one "right" answer, learners' existing knowledge is ignored and their capacity to problem-solve remains under-developed (Muthivhi & Broom, 2009). Furthermore, new learning has not been internalized to facilitate reading competency. This has an impact on learners' ability to master reading as they struggle to acquire or apply new skills.

In addition to socio-economic constraints are the complexities of a multilingual and multicultural classroom which make pedagogic practices challenging (Ferreira, 2009). Fleisch warned that:

> Irrespective of children's social characteristics, their access to "social capital", the general state of health and welfare, or familiarity with the dominant language of schooling, the underlying or fundamental problem in South African education is about what happens inside the classrooms of our nation. The teaching failure ranges from the banal, the failure simply to "show up", to the more complex, the failure to use methods that work. (Fleisch, 2008, p. 121)

In this quote, Fleisch (2008) suggested that the most important issue around our teaching failures, which were evidenced by the Progress in International Reading Literacy

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Study (PIRLS, 2006), in which South Africa achieved the lowest mean scores compared to other participating countries, lies in what is happening in our classrooms. It is his statement that we are failing to use methods that work that speaks to this thesis. Klapwijk (2012) suggested that, despite evidence to support explicit teaching of comprehension of texts, teachers in South African classrooms do not know how to teach learners the skills of comprehension and prefer to place the emphasis on decoding. Establishing a deep understanding of how best to serve the needs of learners by conveying more appropriately the knowledge of reading, has the potential to raise literacy rates and in so doing temper the crisis in South African educational environments.

1.3 Aims and objectives

The overarching aim of this research is to describe pedagogical practices involved in literacy from a socio-cultural perspective. Socio-cultural theory will be used to understand and describe how pedagogic styles, across a variety of teaching and learning contexts, affect the acquisition of early reading competencies

The aim comprises six specific objectives:

- Use a Vygotskian framework to study pedagogical practices in teaching reading in foundation phase.
- Using a case-study approach and a socio-cultural framework, characterize and describe the pedagogical styles observed in 14 foundation-phase teachers in five schools, drawn from a variety of teaching and learning contexts.
- Measure the efficacy of the observed pedagogic styles by testing the literacy competencies of 126 learners in the 14 foundation-phase classes.
- Investigate which pedagogical practices appear most useful in developing literacy skills as determined by progress evidenced in pre and post literacy tests.

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- Investigate whether or not there are consistent differences in pedagogical style that are correlated with the socio-economic contexts of the sampled schools.
- Investigate the potential impact different pedagogical styles have on literacy attainment.

1.4 Research questions

This study is framed by the following questions:

- Do different pedagogic modes impact on the acquisition of literacy as determined by pre and post literacy tests?
- How is reading competency taught in Grade One classrooms?
- What does pedagogy look like in 14 foundation-phase classrooms?
- Does pedagogy differ across classrooms and across the five schools?
- In what ways does pedagogy differ?

Sub-questions derived from the above are:

- Do teachers mediate in their teaching, and what does this look like?
- What is the existing level of reading competency when learners begin Grade One?
- What is the level of reading competency in learners before and after one term of observed teaching and learning?
- What does a matrix analysis [3] of criteria and literacy outcomes reveal about the relative importance of different pedagogic techniques?
- What is the socio-economic profile of each of the sampled schools?

[3] By matrix analysis it is meant the analysis of data across themes that emerge through observation of pedagogic styles.

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1.5 Significance of the research

This research is significant for a number of reasons which primarily pertain to developing knowledge of how teachers teach literacy in Grade One. By understanding how teachers teach and the degree to which socio-cultural techniques are used we can develop an understanding of how literacy can be taught most effectively. This is particularly important in the domain of literacy where the capacity to master reading and writing skills has a profound impact on all academic endeavours. South African learners are considered to be under-achieving; if the situation is to be remedied, we need to understand how children learn and how best to meet their needs in teaching and learning contexts.

This research affords the opportunity to investigate pedagogy through the lens of socio-cultural theory which potentially presents a bridge between theory and practice. By examining how Vygotskian theory is being implemented, the theory can be re-evaluated and its validity determined. Analysing pedagogic modes, by means of a coding schedule, allows in-depth understanding of the complexities of pedagogy and where teachers' pedagogic modes have an impact on the acquisition of early literacy competencies. Finally, the designing and implementation of a coding schedule potentially provides a useful research tool that may be used by researchers in this field.

1.6 Outline of thesis

This thesis will initially address the theoretical framework upon which the analysis of the multiple case studies is based. It will place particular emphasis on understanding the work of Vygotsky in relation to classroom practice in the acquisition of early reading competencies. This chapter speaks to the importance of the ZPD, conscious mediation and the nature of collaborative learning.

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Chapter Three presents a literature review that examines current knowledge on how children learn to read, progresses to specific studies within South African contexts, shows the trajectory of the curriculum changes since democracy, and the challenges that encompass pedagogy within multilingual teaching and learning contexts. The chapter ends with a presentation of studies that have adopted a socio-cultural approach to pedagogy and demonstrated effective results.

Research design in Chapter Four unpacks the approaches adopted by the researcher to yield valid and reliable data that can demonstrate how children learn and how best to teach them to read. A multiple case-study approach and methods of data capture are presented. The variety of data called for a complex cross-cutting or matrix approach to data analysis. The design and development of a tool for analysis of filmed pedagogy, in the form of a coding schedule, is described. Further elaboration on some of the methods and how they were used, is presented in the Findings chapter to facilitate comprehension of the findings.

Multiple levels of data are presented in the Findings chapter which is broken into sections on learner data, teacher data and cross-cutting or matrix analysis. Examples of extracts from filmed lessons provide a snapshot of teaching and learning contexts. The coding schedule is discussed in detail in relation to the aforementioned extracts, thereby providing the reader with an understanding of how data was analysed and the nature of pedagogy through a Vygotskian lens. Analysis of interview data in relation to coding-schedule data provides sharp contrasts between what teachers say and what they do. Specific teachers emerged as more effective than others and it is their pedagogic modes that are described and analysed in detail to achieve the aims of this research.

The final chapter is Discussion and Conclusions which allows for a reflection of the theory-practice-theory concept whereby Vygotsky's theories of development and learning are examined in relation to the realities of 14 South African foundation-phase classrooms.

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Drawing from what the literature presents on how children learn, the challenges of a multilingual classroom, and evidence of the benefits of a socio-cultural approach to teaching, provide an opportunity to analyze the outcomes of this research.

In the following chapter, a socio-cultural theoretical framework is described.

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2. Theoretical Framework

This chapter will discuss the theoretical and conceptual framework of this thesis, with particular reference to the application of Vygotskian theory in the classroom environment. It will describe Vygtosky's understanding of how children learn and the importance of adopting a socio-cultural approach to teaching and learning.

The conceptual framework of a study enables the student to clarify the purpose of the study and define key concepts (Babbie & Mouton, 2010). The purpose of this study is to investigate current pedagogic styles of instruction during literacy lessons in Grade One, with a view to understanding how children learn and seeing whether a socio-cultural approach to teaching reading is evident. Vygotsky's body of work is frequently referred to as a socio-cultural theory (Matusov, 2008) or cultural-historical activity theory (CHAT; Stetsenko, 2012). The different names given to this theory have emerged from different locations of research. In the West, Vygotsky's work is generally referred to as a socio-cultural theory, while in Russia the vast body of Neo-Vygotskian work is generally referred to as a cultural-historical activity theory. The differences in name are not important, but what is relevant is the emphasis on how the social, cultural and historical background impacts on learners' development.

Vygotsky's work is particularly relevant to literacy development and instruction because of his emphasis on the role of language in development and learning (Dixon-Krauss, 1996). This chapter will, therefore, chart the theoretical foundation of this thesis and include definitions of what mediation and the ZPD are, according to Vygotsky. It will examine the theory behind how children learn, the importance of language in this process, and the significance for pedagogic methods. The theoretical framework will therefore afford the opportunity to explore the different theories and perspectives relevant to this research.

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2.1 The development of higher mental functions

Lev Vygotsky, (1978) a prominent Soviet psychologist, is best known for his genetic law of cultural development whereby every function in the cultural development of the child appears twice, firstly on the social plane (intermental) through interaction with more competent learners or adults, and secondly on the psychological plane (intramental) when children internalize new learning which helps them to regulate their behaviour and gain new knowledge.

> Every function in the cultural development of the child appears on the stage twice, in two planes, first, the social, then the psychological, first between people as an intermental category, then within the child as intramental category. This pertains equally to voluntary attention, to logical memory, to the formation of concepts. All higher functions originate as actual relations between human individuals. (Vygotsky, 1978, p. 57)

Higher functions are volitional and can be seen in our memory, attention, rational thought and goals (Minick, 2005). In addition to learning within a social setting, children bring to the classroom their own unique levels of development and cultural backgrounds. The natural levels of development are restructured through mediation which results in what Vygotsky termed "higher mental functions". While children begin their maturation on a purely biological path, through cultural practices they are transformed (Bodrova & Leong, 2006).

The purely biological level of learning is, according to Vygotsky (1992), more about our "lower mental functions" and is the result of our response to external stimuli. Our lower mental functions are physiological mechanisms that we share with other mammals and are frequently dependent on the repetition of a circumstance in order for us to respond appropriately. Examples of lower mental functions would be natural behaviours such as

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elementary perception, memory and attention. By contrast, higher mental functions can be described as uniquely human and are the result of our social interaction which promotes learning through the use of certain tools. For example, when a teacher makes use of a large-format book to discuss and assist a learner to read a story she is engaging learners in, a social context whereby they learn the process of reading is mediated by the book. Speech is the mechanism through which we communicate in a social setting and which facilitates the development of psychological processes (Minick, 2005). Once higher mental functions have been internalized and therefore decontextualized, we develop the capacity to control or regulate our behaviour and remember information without constant prompting.

The early years of development are considered to be the period in which the formation of higher mental functions transform in children, from use of oral language, development of their attention span, memory capacities and complex thoughts, to a more formalized, schooled way of thinking. The acquisition of literacy and numeracy through symbolic, culturally embedded systems promotes a conscious awareness which is a fundamental part of primary education. Whilst lower mental functions are dependent on external stimuli and the participant has limited control over the circumstances of exposure, higher mental functions are deliberate. For example, when learning to read a child must focus on letter sounds and symbols forming words which, when placed in a context and discussed, will enable the child to understand the significance of those symbols. This gives the child control over his reading competencies and behaviour.

Vygotsky (1987) described how children initially acquire "heaps" (spontaneous concepts) which they begin to group together to form unstable "complexes" that form the basis for "potential concepts". As children develop and are exposed to formal school, potential concepts become more stable, complex and abstract, thereby transforming into "scientific concepts". Scientific concepts are specific to culture and are mediated by words.

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("Scientific" does not have the usual discipline-specific connotations in this context.) Words function as thinking tools and help to centre the child's attention on the task at hand while the child processes abstract synthesis.

Development of concepts within a Vygotskian theoretical framework begins with extracting the student's previous knowledge (spontaneous concepts), which in this case may be what a child already knows about how to write his name or sound out a word, and, through discussion, a common knowledge or inter-subjectivity is established. This would then be synthesised into a more abstract dimension, for example, the idea that a symbol on paper allows us to read, which places the new information into a system of relationships within a scientific concept. "Once acquired by students, scientific concepts begin to mediate their thinking and problem solving." (Karpov, 2003, p. 66).

This could be seen in the work of Mary Gauvain (2001) who studied how children between the ages of four and seven, made use of instructions to build a toy with their mother. Her research showed that, in younger age groups, the parent felt the need to be more explicit about her instructions and that the steps to building the toy were carefully followed. In the six to seven age group, parents were less inclined to explain what needed doing or to make use of the instruction sheet. The latter was only consulted when the child encountered a problem with construction. Gauvain (2001) concluded that the parent assumed that the child had the necessary knowledge and that the cultural tool of a "map of instructions" had a clearly defined role which had facilitated the child's construction competency. Common sense was the method employed as the child now had a "working knowledge" of how to construct a toy.

Karpov (2003) stated that Vygotsky did not describe what the process of mastery of scientific concepts should be once they are presented to the student, that is, he did not provide enough empirical data to allow us to fully know what he meant. However, Karpov still

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considered Vygotsky's theory a good basis for the analysis of what the content and process of school instruction should be to meet educational goals.

If we accept that, according to Vygotsky, the development of higher mental functions is dependent on a mediated social setting and that schools "engender new and distinct forms of learning and lead to new ways of thinking", then as teachers we need to develop tools for teaching and learning (Wood, 2001, p. 16). Higher mental functions become essential for the child's academic success, but are also the result of academic endeavours. It could, therefore, be argued that the foundation-phase teacher plays a vital role in helping the learner to achieve academic success because she facilitates the development of higher mental functions. Furthermore, it is the ability to read comprehensively that promotes the development of the child's academic competencies.

2.2 Effects of culture: tools of intellectual adaptation

The concept of "culture" as it is defined in Vygotsky's work is linked to the development of higher psychological functions and appears as a "cultural-historical" concept and as "cultural development" which pertains to mediation of action through culture as a defining property of human psychological functioning (Cole & Gajdamaschko, 2007). Vygotsky's understanding of "culture" can be best described as encompassing the totality of socially transmitted behaviours, thoughts and all other products of human work (American Heritage Dictionary, 2012).

Vygotsky (1978) put forward the idea that humans display biological functioning which, through exposure to culture, transforms into higher mental functions. Culture is always mediated and defined by use of tools, signs and language. Cole described cultural practices as "activities for which there are normative expectations for repeated or customary actions…within cultural practices, all objects are social objects – they are socially

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constituted" (1996, p. 188). Studies of indigenous cultural activities, such as in the Vai people (Scribner & Cole, 1981), or as in the work of Shirley Brice Heath (1983) who looked at African American culture, have helped to expand Vygotsky's concept of "culture" to include an understanding of how situated cultures can affect literacy learning. Cole and Gajdamaschko (2007) stated that:

> What distinguishes Vygotky's understanding of culture from others, is his insistence that what is crucial in human development and distinct from the development of other creatures is not the existence of tool use or communication considered in isolation, but their fusion such that what are ordinarily considered separately as tools, signs and symbols, are unified. (p. 200)

These authors explained that the significance of this unification is that humans have the capacity to influence one another through mediated learning which allows children from their earliest encounters with more capable others, to transform by means of objects and language within a social dynamic. Cole (1996) suggested that it is not about deliberately teaching a child language, but rather that adults must arrange for or allow for children to participate in culturally organized activities which are mediated by means of language. According to Vygotsky, all humans have culture and share a common pool of elementary psychological functions which have resulted from their phylogenetic heritage (Cole & Gajdamaschko, 2007). As humans have the ability to build on their past undertakings, our culture has evolved, increasing in quantity and quality. Vygotsky (1992) theorized that this has resulted in humans relying more on their culture than on natural modes of behaviour. The evolution of specialist psychological meditational tools such as writing and numerical symbols was combined with profound development of language. Vygotsky (1962) considered both to be at the core of human development which cannot be separated from its social and cultural context.

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> That children's learning begins long before they attend school is the starting point of this discussion. Any learning a child encounters in school has a previous history. (Vygotsky 1978, p. 84)

The acquisition of cultural tools is the essential mechanism behind the cultural development of the child. The term "cultural tools" is a metaphor that Vygotsky used to describe a specific group of signs or devices which enable humans to control their own behaviour. "Cultural tools are artefacts created at particular times in particular cultures that support cognitive and linguistic activity." (Garton & Pratt 2009).

It is necessary to view the cognitive activities of learners within the cultural context in which their thinking is rooted. "The human heritage is notable for the cultural legacy of values and skills, which each new individual inherits from near and distant ancestors and practices with the assistance of caregivers and the companionship of peers." (Rogoff, 1990, p. 42).

Children observe adults making use of cultural tools, such as a baby watching a parent using a spoon to eat and in so doing the baby will determine the purpose of a spoon. In their observations of adults using tools to achieve their goals and learn, children internalize this information and it becomes part of their own competency (Garton & Pratt 2009). Vygotsky did not make use of the term "tool" or "artefact" but rather described a sign system or psychological tool that is a central mediator of higher cognitive functioning. It was Cole (2005) who coined the more popular term of "tool" or "artefact". Perhaps one of the most important cultural tools is that of our reading and writing systems which facilitate new learning.

According to Vygotsky (1978), cultural tools transform human mental abilities, enabling increased memory capacity, problem solving, emotional competency, increased attention span and organised thinking. He posited that, although cultural tools exist outside of

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the human organism, they are essential to our internal development. A classic example of children using external tools to expand their higher mental functions is that of preschool children using an alphabet chart to identify and name letters to help them to read and write their names (Harrison, 2011). By internalising the symbols and sounds of the alphabet, the pre-schooler masters pre-reading skills, but the success of the internalization is dependent on a socially mediated context. Vygotsky referred to the process of transforming natural forms of behaviour through the use of signs or tools as "semiotic mediation" (Dixon-Krauss 1996). "Semiotic" refers to all forms of signs and not just that of language, while "mediation" requires a minimum of two participants and describes the relationship between the participants and either an object or a subject. The role of language is fundamental in the mediation process.

Vygotsky (1978) described a number of stages in the child's development through the use of culturally mediated tools. The first step involves repeated exposure to that tool which, in our example, would be the alphabet chart. During a morning literacy ring, the teacher may elect to sing the alphabet and point to each letter as the song unfolds. This links to the second stage in which the tool is used within a specific context, with the more capable adult helping to guide the new learning. Here the adult may link the alphabet sounds to specific learner's names and play games which enable the learners to identify their names. This would become a building block for the children's attempts at recognising and writing their names. The third stage is when children deliberately use the tools to learn independently. In this case, a child may copy the letters of his name by using the alphabet chart as a point of reference. In the fourth stage, the children have absorbed the shape and sound of all the letters of their names, and are able to write their names on their art work without any form of assistance. The external mediation of the alphabet chart is no longer necessary and the children have

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internalised the cultural tool of the alphabet. In this way a child's behaviour has been transformed or restructured through the introduction of external signs (Minick, 2005).

What makes the concept of "semiotic mediation" so powerful and relevant to pedagogy is its relationship between mental functioning and socio-cultural activity. As discussed in the aforementioned example of pre-schoolers learning to read, it is through the combination of exposure to a culturally determined semiotic tool, namely the alphabet chart, which is socially mediated by the educator or sometimes by a more capable peer, that children develop the capacity to use and understand the alphabet.

It is well recognized that Vygotsky viewed language as the most powerful means of semiotic mediation. For lower mental functions to be transformed into higher mental functions, human communication, namely "speech", must take place. Initially a child's thoughts are non-verbal and expressed through gestures which then are transformed by the response received when an adult interacts with the child. With continued social interaction, the child collects language experiences which she internalizes to develop problem solving skills. Language acquires a function additional to that of external speech when it is used as a psychological tool to structure thought (Karpov, 2005).

Semiotic mediation in a socio-cultural setting could be described as the "natural" way in which humans interact with one another. It is through our use of language that we communicate and in so doing are mediated to develop higher mental functions. The more formalized development of scientific concepts is typical of the school environment where the teacher aims to develop learners' academic competencies. This should not, however, be a passive process as both the teacher and the learner should be actively engaged in teaching and learning. The use of a socio-cultural approach to teaching reading in a Grade One classroom must, therefore, include the active participation of both learners and teacher with careful

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attention being paid to how the teacher uses language and what semiotic tools are chosen to facilitate mediation.

2.3 The Zone of proximal development

The concept of the Zone of proximal development (ZPD) is derived from two sources of Vygotsky's work, the first being his well-known *Thought and Language* (1962, 1986) and the second being an essay entitled *The Interaction Between Learning and Development*, which subsequently appeared in *Mind in Society* (1978). The ZPD has become an important concept for clarifying the relationship between development and instruction. It encompasses "internalization", "semiotic mediation" and "concept development". Vygotsky (1962) introduced the ZPD to criticize psychometric-based testing in Russian schools as he felt that these tests did not adequately reflect learners' abilities. He argued that traditional tests showed what had already been developed and not the "potential of tomorrow's development" (Vygotsky 1978).

To be an effective teacher, the teacher must pitch the level of work within the child's potential level of achievement. Vygotsky's definition of the ZPD is as follows:

> What we call the Zone of proximal development....is a distance between the actual developmental level determined by individual problem solving and the level of development as determined through problem solving under guidance or in collaboration with more capable peers. (Vygotsky 1978, p. 86)

The ZPD is therefore the "gap" between what a child is able to do on their own and what they are capable of with assistance from a more competent adult (Wood, 2001). When a child enters the classroom environment, their skills and competencies within their individual ZPDs have not yet fully emerged which means that the child needs assistance to help them to blossom. According to Bodrova and Leong, Vygotsky's approach focuses on "the child "to

be" or "the future child" rather than on the "present child" (2007, p.42). The key concept in the ZPD is that of "potential" as the ZPD does not demonstrate a baseline level of maturation but rather the potential level of abilities. With this in mind, it is important to note that the "potential" of the child cannot be realised without the collaboration of the child with a more competent adult or peer. Newman, Griffin and Cole (1989) suggested that the ZPD refers to an interactive system within which both parties must work to solve a problem which at least one of them could not master on their own. According to Rogoff (1990), over the course of time, children take on increasing responsibility for managing learning situations and familiarizing themselves in given tasks. She says it is here that the teacher must be sensitive to the child's level of competence providing sufficient responsibility for the child to succeed. "In order to tailor their assistance, adults need a notion of both how the specific task could be accomplished and how the specific child is likely to approach it." (Rogoff, 1990, p.100)

The main goal of education from a Vygotskian perspective should be to assist the learner within their individual ZPDs and to motivate them to learn through collaborative endeavours which facilitate problem solving that is slightly more difficult than what the learner may achieve on their own. This would result in the completion of a given activity which the learner will be able to achieve individually in the future and consequently will have raised their level of ZPD. The ZPD is therefore "a fundamental functional system for cognitive change" (Newman *et al.* 1989, p. 71). The new level of ZPD now requires a more difficult task to enable further development (Shabani, Khatib &Ebadi 2010).

Karpov (2003) said that empirical learning which is the traditional way of learning that is employed in schools is often problematic because it leads to misconceptions. He suggests that rote learning prevents the child from applying the knowledge at hand because rote learning is inflexible, meaningless and non-transferable. Karpov described it as "pure verbal knowledge which is inert" (2003, p. 70). Newman *et al.* (1989) implied that unlike more

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traditional forms of schooling in which the teacher is dominant and rote learning is the general mode of teaching, the ZPD approach places the emphasis on interactive knowledge acquisition with the teacher appropriating the child's contributions into their understanding of the task at hand. In this way the learning remains meaningful to the child and they engage with the material being taught.

Gallimore and Tharp (1993)[4] suggested that the ZPD contains four essential stages. In the first stage, performance is assisted by more capable others such as the teacher or peer. How much help the learner requires is determined by their age, the nature of the task and the learner's base line of existing knowledge. As the knowledge at this stage may be very fundamental the teacher must give explicit directions, model behaviours and help the learner to problem solve and organize information. Language is the primary mediational tool and is used to present the learner with questions, immediate feedback and a deeper understanding of terminology specific to the subject at hand. This brings about the shift from the first stage to the second. The progression to the second stage takes place when the learner is able to perform the designated task unassisted.

The second stage concerns the learner performing the task unassisted which they are able to do because they have acquired an understanding that has moved from the intermental to the intramental. This does not mean that the child can perform in a completely automated fashion. They may still require the use of "self-directed speech" in order to organize their thinking and actions.

Stage three describes the automation and "fossilization" of the learner's performance (Gallimore & Tharp1993, p. 184). By this it is meant that the learner is no longer making use of obvious signs of self-regulation and has emerged from the ZPD. The task is now easy to perform and is described as "fossilized" because it is now fully internalized and fixed.

[4] See diagram on page 51 adapted from Gallimore & Tharp (1993, p. 184-185).

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Gallimore and Tharp (1993) explained that in the fourth and final stage the learner performance is de-automatized, leading to recursion through the ZPD. By this it is meant that in lifelong learning there is a recurrence of the aforementioned steps moving from mediated assistance to a point of self-assistance. They go on to say that every individual at any point in time will experience a mix of mediated assistance and automatized processes.

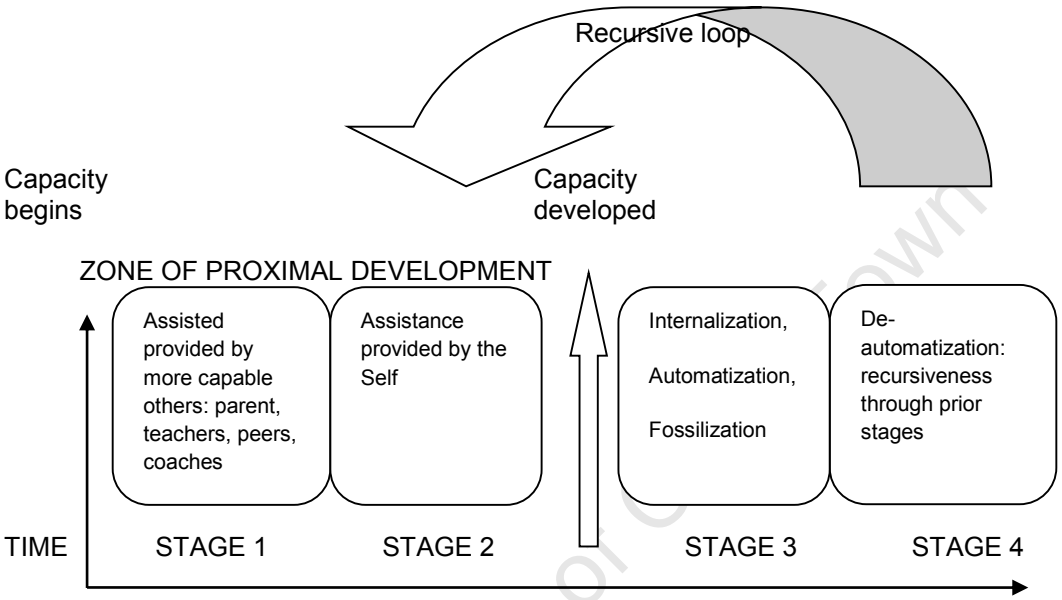

Figure 1: The genesis of a performance capacity: Progression through the Zone of proximal development and the cyclical nature of the process. (Adapted from Gallimore & Tharp, 1993, p. 185.)

The teacher's role within the ZPD includes three steps according to Dixon-Krauss (1996):

- The teacher mediates or augments the child's learning by providing support for the child through social interaction as they cooperatively build bridges or awareness, understanding and competence.
- The teacher performs a flexible meditational role. What she says or does will depend on feedback from the child while they are actually engaged in the learning activity.
- The teacher must focus on the amount of support needed. Her support can range from very explicit directives to vague hints. (Adapted from Dixon-Krauss 1996, p. 16-17.)

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Bodrova & Leong (2006) stated that because the ZPD is entirely individual it presents a challenge to educators who ideally must cater for all the individual ZPDs in their classrooms. They argue that teaching must identify goals for children that are achievable but still challenging. The independent level of performance that marks the lowest level of the ZPD as well as goals that go beyond what the child can do independently, form part of an appropriate ZPD (Bodrova and Leong 2007). If the teacher views the child as an individual, they will be sensitive to the child's reaction to the support or assistance that the ZPD provides. If the child accepts the support that is given, Bodrova and Leong (2007) explained that the teacher has "got it right" but if the child ignores the help, then the teacher must evaluate the nature of the support. Bodrova and Leong (2006) argued however that this is within the bounds of possibility when we move away from viewing the only source of assistance as being that of the teacher in the classroom and when the educator deliberately sets out to relinquish control of the learners by "orchestrating the quantity and quality of assistance to fit each child's individual needs and strengths, it is possible to maximize each child's learning potential" (Bodrova & Leong 2006, p. 249).

The concept of the ZPD would therefore suggest that learning can lead developmental change and the use of mediation will influence the child's capacity to develop (Karpov 2005). This research examines the pedagogic modes of foundation-phase teachers in order to determine how children learn to read and how best to mediate this essential area of cognitive development. Wood (2001) explained that when we help a child to solve a problem, in this case learning to read, we provide conditions in which he can begin to perceive regularities and structure in his learning experiences. If we leave the child to learn on their own, we raise the potential for uncertainty, lack of organization of thinking and an inability to constructively problem solve. Wood (2001) advanced that teachers can do a number of things to assist when engaged in a ZPD relationship. These include pointing out salient points which will highlight

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what needs to be attended to; reminding children that their existing knowledge is important and can be exploited where relevant; proposing appropriate steps in a task helps the child to complete an exercise in a logical manner and providing feedback guides the child and presents a positive environment which encourages the child to tackle challenging tasks. Wood (2001) suggested therefore that learning is taking place on at least two levels: the child is learning about the task at hand in order to develop home-grown proficiency and he is learning to structure his own learning and reasoning. In this way the child develops tools for learning and is ultimately able to self-regulate.

2.4 Make-believe play and the ZPD

The link between play and the development of higher mental functions was seen by Vygotsky as being at the core of cultural development:

> Play also creates the zone of proximal development of the child. In play the child is always behaving beyond his age, above his usual everyday behaviour; in play he is, as it were, a head above himself. Play contains in a concentrated form, as in the focus of magnifying glass, all developmental tendencies; it is as if the child tries to jump above his usual level. The relationship of play and development should be compared to the relationship between instruction and development. (Vygotsky 1978, p. 74)

Leontiev (1981) expanded on Vygotsky's "activity theory" when he described play as the leading activity of young children and how in the formal school environment, learning becomes the leading activity (Ashton 1996). Daniel Elkonin (1971), a student of Vygotsky, identified how dramatic play can elevate a child's higher mental functions within their ZPD and prepare the child for formal schooling. Firstly it is during dramatic play that the child learns to defer pleasure and to be more deliberate about their thoughts and actions. For example when a child is designated a particular role in a game, they are required to adhere to

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the rules of that role and may not deviate at peril of being excluded from the game. This means that they have to defer their desire to perhaps be a different character in a game or to break the rules. The ability to follow rules is a fundamental aspect of self-regulation and consequently the development of mental processes that will allow for academic success. Secondly dramatic play facilitates cognitive "decentering" in which the child learns to understand other people's perspectives and to reflect on their own feelings. During dramatic play the child has to adopt multiple roles and work with their peers to engage in the roles they have been assigned. It is only through this form of collaboration that they can successfully participate in the "make believe" game. Thirdly, it is a natural part of role play to make use of props which can represent a myriad of things that may bear little resemblance to the actual objects meaning. For example the child may use a rectangular block to represent a cellphone or a block of butter. This use of objects progresses to a more abstract representation demonstrated in speech specifying the nature of the game. This ability to use words to assign a new meaning to objects was considered by Vygotsky (1978) to be a critical prerequisite for learning to write.

> The new meaning embodied in words bring the game to life. This is possible only because the word itself at this period of development contains the child's experience of acting with the object. (Karpov 2005, p. 135)

During dramatic play, children frequently make use of writing as a means to describe what they are doing. For example a child may construct a birthday party invitation or shopping list by scribbling on a piece of scrap paper and folding it before giving it to a fellow peer. In this way children learn to associate signs with meaning which is central to the act of reading. Vygotsky (1978) described how an initial written symbol will serve as a sign for a verbal symbol (in this case perhaps the phone number of a child being invited to a party) and that to understand written language we must first see its link to oral language. This link is

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then constricted until written language becomes a direct symbol that is as easily understandable as oral speech. Vygotsky (1978) advised teachers to teach reading and writing through "written language" rather than a series of isolated alphabetic symbols for it is only in this way that the process is meaningful and consequently will motivate the child to learn to read.

Matthews (1996) stated that by using children's writing, teachers gain unique opportunities to understand what the child already knows and what they are ready to learn. This corroborates Vygotsky's concept of the ZPD in which the teacher must first observe the learner in order to ascertain what they know and to build on existing knowledge. Conventions of writing should be taught within the context of the child's own writing where the reasons for the application of conventions can be explained. Vygotsky puts forward the notion that we cannot teach children how to write using traditional methods because this would require too much effort on the part of both the teacher and the student that the actual written language is relegated to the background. He says we need to let children write the way authentic writers write (1978). The teacher may therefore request that the child write a sentence pertaining to their activities over the weekend. Through the use of this sentence, the teacher can identify what the child knows about explicit language skills such as sentence construction, spelling and phonics. Through mutual discussion the teacher and learner can achieve a new level of ZPD.

Despite our understanding of the importance of play in the cognitive and emotional development of young children, Rubtsov and Yudina (2010) suggested that too much emphasis is now placed on structured activities including organising preschool learners extra-mural programs which means that children no longer have the opportunity for "make believe" play as they are constantly being required to master a new skill or to occupy their time in a "constructive" manner. Bodrova & Leong (2006) urged educators to focus on the support

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afforded by play with regards to the underlying cognitive, social and language skills which promote learning but which are at risk of being side-lined by the phasing out of play and the excessive emphasis on formalized literacy focused lessons.

Brown and Cole's (2000) research into socially shared cognition in after school facilities examined the organization of learning within educational play worlds which they referred to as the "Fifth dimension". Cognition was seen to be distributed amongst the participants, the artefacts they used and the social institutions within which they took place. Contextualised mediated action facilitated learning through computer based games and an imaginary "Wizard" designed to assist learners to problem solve, provided a collaborative learning environment. In addition the presence of a site co-ordinator trained to guide the balance between learning and play, promoted further mediation. Results showed that learners who had participated in the "Fifth dimension" project evidenced improved scores in school-district tests in reading and numerical problem-solving. Learners were able to transfer their new problem-solving skills to classroom contexts and follow written directions more effectively. Drawing from appropriate cultural tools, making use of scaffolded learning with active participation on the part of the teachers and learners, had allowed teachers to teach and children to learn.

2.5 The role of mediation

There are three themes in Vygotsky's sociocultural approach to mediated action according to Wertsch (1993). These have been derived from the body of Vygotsky's work and include: a reliance on genetic or developmental analysis; the claim that higher mental functions are derived from social interaction, and the claim that human action on both the social and individual plane is mediated by tools and signs (Wertsch, 1993).

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It is Vygotsky's socio-cultural theory that has helped to shape our thinking around mediation in the classroom. Vygotsky (1962) believed that meaning is constructed through a combination of language and its cultural context and that when children indulge in play they are extending to new limits already existing skills (Bruner, 1977). For Vygotsky, humans are very different from their animal relations because they bring to the learning environment an evolutionary capacity to adapt and manipulate their environment and have consequently built up cultural and historical tools (Van der Veer & Valsiner, 1991). This collective social history is brought to the classroom and transferred from learner to learner and from educator to learner through the process of mediation. Vygotsky describes the mediational process as being goal directed and a conscious activity in which the educator creates an environment that is conducive to learning (Van der Veer & Valsiner, 1991). Vygotsky sees mediation as happening with the assistance of signs and that this gives it its generative quality. This encompasses the social and cultural qualities of the relationship between the teacher or mediator and the child (Moll, 2004).

> Cognition is distributed across mind and society, in the activities of learners and other people, in the artefacts and sign systems they use, and in the institutions in which they participate. (Moll, 2004, p. 107)

Language occurs at the same time as the child begins to use symbols and it is this language that opens the door to understanding things that are not necessarily present (Piaget, 2001). Bruner (1997) says that whilst Piaget did not use the term mediation, he did see the child's development as being "interactionist" because it is dependent on a reciprocal mutually dependent interaction between people and their environments which could be seen as a form of mediation. "The mind mediates between the external world and individual experience" (Bruner, 1997, p. 68). The child influences the caregiver to provide them with something they require and the caregiver then influences the child by giving them what has been

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requested. In this way mediation and self-regulation are interrelated. When the child is able to independently use a new skill, such as reading, they have internalized the new knowledge that they acquired from meditational strategies and are now able to regulate their behaviour around their newly acquired skill of reading.

Karpov (2005) explained how learners begin to regulate their learning in the course of mediation, acquiring and mastering new psychological tools, resulting in the development of new mental processes. "…the learning of specific abilities in one domain transforms the intellectual functioning in other areas." (Van der Veer & Valsiner, 1991). These mental processes outgrow the child's current activity, which creates the basis for their switching to a new activity (Rowe & Wertsch, 2007). Vygotsky argued that the child does not develop in a straight line but rather develops through "discontinuity, a replacement of one function by another, a displacement and conflict of two systems" (1997, p. 225). Higher mental processes are mediated by psychological tools such as language, signs and symbols. These are taught by adults, for example the educator, to children during their mutual activities and they are internalised by the child thereby working as a further mediation (Karpov & Haywood, 1998). From the Neo-Vygotskian point of view, mediation not only creates Zones of proximal development of new mental processes, but also creates Zones of proximal development of new activities of children through the conversion of their goals into motives and actions into activities (Karpov, 2005).

Vygotsky proposed that consciousness is created through socially mediated activity (Ashton 1996). "The internalization of socially rooted and historically developed activities is the distinguishing feature of human psychology." (Vygotsky, 1978, p. 57).

Mediation is a theme that runs throughout the work of Vygotsky and is associated with his view of how we use "tools" to manage our psychological development and human consciousness. "Tools" or "cultural artefacts" refers to any manner of things we may use such

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as pens, spoons and paper, to more complex things such as language, belief systems and religion. At the heart of the concept of mediation is inter-subjectivity which is described by Wertsch (2007) as the establishment of a shared understanding between the learner and the tutor. Vygotsky builds links between social and historical processes and the development of human mental processes, through mediation. "It is not a matter of bringing to the internal plane a product that was produced externally. It is a matter of social engagement that leaves the individual changed." (Rogoff, 1990, p.196). Humans internalize forms of mediation which are provided by cultures, our history and schooling systems. This places our mental functioning within a socio-historical situation (Wertsch, 2007). He explained Vygtosky's theory of mediation as having been complex and essentially transforming.

In order to help explain Vygotsky's theory, Wertsch described two types of mediation, namely "implicit" and "explicit" mediation. From his perspective, the development of mediated action involves a dynamic transition from minimal appreciation of the meaning and functional significance of a sign form to ever increasing levels of sophistication (Wertsch, 2007, p. 191).

Explicit mediation is intentionally introduced "signs" through a more capable adult who is directing a specific activity with a view to stimulating learning and to facilitate its organization. Implicit mediation is more difficult to detect and does not need to be artificially or intentionally introduced as it is already part of the ongoing activity. An example of implicit mediation would be that of language which provides the source of ongoing communication which allows for mediation in the first place.

Vygotsky's approach to learning and instruction is to encourage students to master the use of cultural tools through mediation. When the teacher uses explicit meditational tools, for example, a set of alphabet cards to show the shape of the letters of the alphabet the child may initially be confused but as the teacher uses implicit communication and plays games which

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allow the child to become familiar with the symbols of the alphabet in a context, the child is learning through mediation and developing their higher mental functions. Vygotsky argues that the hallmark of the relationship between signs and behaviour, between word and thought and between child and mediation, is that it undergoes fundamental change (Wertsch, 2007). Minick (2005) explained that it is a process of socialization which enables the child to become more "expert" at using cultural tools and to be flexible and fluent. Consequently a Grade 1learner who is beginning to read will eventually be able to move from reading aloud to reading silently (Bodrova & Leong, 2006).

Language for Vygotsky (1986) is the most important mediator. Language gives children a powerful way to solve problems, it is essential for self-regulation (Harrison 2011) and it facilitates inter-subjectivity (Ashton, 1996).

> Communication and shared problem solving inherently bridge the gap between old and new knowledge and between the differing understanding of partners (whether their understanding is at the same or at different levels), as individuals attempt to resolve contradictions or search for the common ground of shared understanding. (Rogoff, 1990, p. 196)

Minick (2005) put forward the notion that Vygotsky conceived language within the context of schooling as being part of a system of knowledge whereby learning occurs through specific word meanings which help the child to establish "scientific concepts". When facilitating the acquisition of reading competency in Grade 1learners, the child must not only develop the capacity to decode words but must move to the level of understanding what they are reading in order to truly develop their "scientific concepts".

Dixon-Krauss (1996) suggests that educators assist learners to build bridges between what they already know and the new knowledge they are acquiring. Learning to read is a time in which learners are being required to rapidly master new knowledge in order to progress in

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their academic endeavours. It is therefore essential to provide a learning environment that can support this process. Palincsar and Brown (1984) demonstrated how applying tools of mediation to learners who were struggling to access meaning in texts resulted in a profound improvement in their performance when analysing texts. Working from the assumption that some children fail to advance beyond the initial stages of reading because they do not know how to relate to a text i.e. they do not actively engage with the text or have the tools to understand what they are reading, these researchers developed steps for intervention. They adopted a reciprocal teaching approach with scaffolded learning which allowed the students to work within their individual Zones of proximal development (ZPD). The researchers consciously drew from the learners' existing knowledge to summarize expository texts. The intervention techniques that were used included making explicit, steps that skilled readers would use automatically such as asking aloud questions that the text might provoke; predicting the next step in a story or resolving ambiguity. The learner was encouraged to play the part of the teacher and to discuss the text with another learner. These seventh Grade learners showed a marked improvement over a series of formal lessons moving from the bottom 7% of their class to the level of the class average. In this way appropriate cultural tools were used and internalized which allowed learners to validate their own relationship to the text and the world around them. According to the Vygotskian perspective, the learners were able to progressively internalize self-regulatory steps which ultimately became automatic.

2.6 Scaffolding

The socio-cultural theory of mind and the concept of ZPD form the basis of the notion of scaffolding (Daniels, 2001; Dixon-Krauss, 1996) however the explanations and interpretations of how scaffolding relates to it differ. Scaffolding can be seen as a direct

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application and operationalization of Vygotsky's concept of teaching within the ZPD (Dixon-Krauss, 1996) or it can be seen to only partially reflect the strength of Vygotsky's ZPD (Daniels, 2001).

Borrowing from the field of construction, scaffolding represents a supportive relationship between the teacher or more competent peer and the learner, collaborating to construct knowledge with the ultimate goal of the teacher relinquishing control and responsibility to the learner (Bruner, 1977). The student is not a passive participant in the teacher-learner relationship. Scaffolding is a fluid interpersonal process whereby both participants actively build a common understanding or inter-subjectivity through language and the use of mediated tools or signs. As scaffolding takes place within the individual child's ZPD, it is unique to a particular learning situation and is not a type of applied "recipe" that can be used in the same way for all learners.

Van de Pol, Volman and Beishuizen (2010) identified three characteristics of scaffolding. These are labelled "contingency"; "fading" and "transfer of responsibility". Contingency according to Van de Pol *et al.* (2010) refers to the teacher's capacity to be responsive and to determine the baseline level of the learner's ZPD. This will enable the teacher to pitch the new learning at an appropriate level. Fading is the gradual withdrawal of support as the teacher perceives the learner's competency increasing. The rate of fading is determined by the individual learner and their unique ZPD. Finally the "transfer of responsibility" happens when the learner takes full control of their learning and is able to perform a task independently.

Van de Pol *et al.* (2010) suggested that scaffolding can employ specific means such as modelling and the use of open ended questions but that scaffolding only really occurs when the three characteristics of scaffolding (namely contingency, fading and taking responsibility) are present. Furthermore, Van de Pol *et al.*'s. (2010) overview of research using the concept

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of scaffolding revealed that it is problematic with regards measurement because it is a complex and dynamic process which takes place over time whilst conventional forms of measurement require a static state in order to establish validity. These authors comment that a fair amount of research has taken place around scaffolding (particularly with regards literacy) but that little has been done in the natural classroom setting. Van der Pol *et al.*'s. (2010) definition of the three characteristics of scaffolding, facilitate measurement by providing clear steps that must be in evidence in order for true scaffolding to occur.

2.7 Neo-Vygotskian perspectives

Vygotsky worked collaboratively in the 1920s and 30s with N. Leontiev, Alexander R. Luria and many other scholars. With his untimely death in 1934, much of his work remained unavailable to the West until the early 1970s. The Vygotskian school of thought continued with researchers such as Galperin, Zaporozhets, Elkonin and Davydov. These early Neo-Vygotskians were instrumental in helping to interpret Vygotsky's work and bring it to the attention of western thought. Cole, Daniels, Karpov, Hedegaard and Stetsenko are but a few of the current Neo-Vygotskians who are continuing the Vygotskian school of thought and making it relevant to education today.

Stetsenko and Vianna's (2009) work spoke to this research project as it is their concept of examining a theory in relation to practice in order to re-evaluate that theory, that is being suggested as the basis for research in pedagogic styles in the teaching of basic literacy in Grade1. They suggest that there is insufficient reflection on theory and practice particularly pertaining to educational environments which has resulted in a paucity of understanding around how children learn.

Stetsenko and Vianna (2009) saw teaching, learning and development as interrelated. They suggest that in the light of Vygotsky's theory that we learn through socially mediated

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collaborative scenarios which are rich in cultural tools. We cannot see the child as learning in a vacuum with knowledge as a separate entity being conveyed to a non-cultural learner. Furthermore they see theory and practice as being fundamentally interrelated because "knowledge and its application need not be seen as two separate enterprises, and that instead…findings from use-inspired basic research can directly inform the practice and at the same time generate insights that help to advance theoretical knowledge" (Stetsenko & Vianna, 2009, p.41).

Stetsenko and Vianna (2009) regarded Vygotsky's theories to be particularly valuable to psychologists and educators around the world because of his conceptualization of mind and knowledge as being the result of the child's participation in collaborative social practices which are advanced by mediation through cultural tools and consequently encompass the dimensions of knowing and doing in one indivisible blend. Much of Neo-Vygotskian development of Vygotsky's theories centres on the cultural-historical dimension which suggests that children actively develop through collaboratively changing and creating their environment through the use of cultural tools that have arisen over time. These theorists work is frequently referred to as CHAT (Cultural Historical Activity Theory, a term first coined by Cole, 1996).

Stetsenko and Vianna (2009) described knowledge as being more than an inert reflection of stored facts but rather it is "an ability of an intentional human being to carry out, participate in, continue and ultimately contribute to collaborative practices through one's actions" (2009, p. 46). Knowledge is therefore seen to be "a snap shot in time" of past practices in a given socio-cultural context which can subsequently be amenable to expansion through the cycle of theory-practice-theory.

At the heart of CHAT is the concept that teaching and learning lead development (Karpov, 2005) which prompted Neo-Vygotskians to focus on the practical organization of

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classroom activities to try to determine how cultural mediation can work. This according to Stetsenko and Vianna (2009) provided the interface between theory and practice because the theory is contributing both to fundamental knowledge in developmental psychology and to classroom practices.

Hedegaard (2001) suggested that children not only learn through participation in the social world but become involved in a reciprocal process whereby their motives and personalities play a role in the interaction with another party in the classroom (such as their teacher or classmates) and consequently contribute to their own learning conditions. She goes on to explain that the use of cultural tools in assisting the development of human cognition cannot be separated because "all artefacts and tools have a mental as well as an action aspect" (2001, p. 7). Tools or artefacts function within particular contexts which help to determine how a person might develop so for example children learning at school will be making use of artefacts that are relevant to a schooling context.

Learning is connected to practice traditions and the practice traditions in families and in other institutions are the foundation for situated practice. (Hedegaard, 2001, p. 14)

A socio-cultural approach to learning has been developed in the work of Anna Stetsenko with her Transformative Activist Stance (TAS) "education involves theories and visions about society, human nature and knowledge in relation to educational ends" (Stetsenko, 2012). She posited that learning and teaching is one and the same thing, but it is greater than this in that it extends to one's positioning in community practices both in the past and the present and more importantly to ones commitment to change them. This commitment needs to encompass an "authentic" position from which to learn about existing structures and our world in general. Stetsenko (2012) suggested that learning is not about information, technique, facts or abstract truth but rather it is about "human becoming". For Stetsenko learning occurs in and through one's struggle of becoming which determines the development

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of identity. It is by finding one's place among other people and realizing how one can make a contribution to social practices that the child truly learns. Stetsenko posited that as educators, we need to show how learning is relevant and to help expand the learner's existing horizons. In this way learning becomes transformative as it then provides tools for identity development and opening up new horizons for personal and social growth. Stetsenko (2012) advanced a Vygotskian perspective that places the emphasis on meaning- making as being crucial to the development of the person because it brings about change which opens up new possibilities. By evaluating Vygotsky's theory in terms of the cyclical relationship suggested by Stetsenko and Vianna (2009) we can ascertain what methods of instruction can best meet the needs of our learners and consequently begin to address some of the problems that are evident in our South African education contexts.

2.8 The application of Vygotskian principles

> In school, the goal should be that subject matter knowledge and skills that are acquired should become the person's own tools for the practice that they will participate in, in the future (i.e., in their everyday practice in other institutions, home and work place) because school is an institution that prepares the child for life in other institutions, higher education, work, marriage, etc. (Hedegaard, 2001, p. 17)

According to Vygotsky's (1992) writings in *Educational Psychology* and first published in 1926, in traditional schools, students are generally passive receivers of instruction and lessons which works against their natural way of learning. He suggested that it is the role of the school to create an environment in which students can ultimately teach themselves. This does not mean that the teachers' role is superfluous, but rather that it is one of being the "road upon which the car might travel". The teacher is essential in providing a social setting that

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will guide the student's learning through adjustments that the teacher has recognised and then made to facilitate learning.

In addition, Vygotsky (1992) emphasised that it is an active scenario with an active teacher, active learner and an active social milieu. Though the teacher is powerless to produce immediate effects on the student, he is all-powerful when it comes to producing direct effects on him through the social environment. The social environment is the true lever of the educational process, and the teacher's overall role is reduced to adjusting this lever.

> Just as a gardener would be acting foolishly if he were to try to affect the growth of a plant by directly tugging at its roots with his hands from underneath the plant, so the teacher is in contradiction with the essential nature of education if he bends all his efforts at directly influencing the student. But the gardener affects the germination of his flowers by increasing the temperature, regulating the moisture, varying the relative position of neighbouring plants, and selecting and mixing soils and fertilisers, that is, once again, indirectly, by making appropriate changes to the environment. Thus the teacher educates the student by varying the environment. (Vygotsky, 1992, p. 49).

A number of pedagogical conclusions emanate from Vygotsky's quote. It could be said that it is important to be actively involved in the teaching and learning process, but most important is to stimulate the learner's interest in the subject at hand. This suggests that a number of pedagogic strategies should be in place. These include linking new knowledge to something that is already known by the student in order to determine her ZPD, connecting information across different subjects to help the learner to establish understandings across her studies and everyday life, and finally avoiding excessive repetition as this can render a subject boring, resulting in the learner disengaging from the learning process (Karpov, 2003).

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2.8.1 Mediated literacy instruction

> Reading and writing prepare the child for receiving schooled concepts. Reading is both the condition and the process of acquiring meaning. To learn to read is to learn to comprehend, and to teach reading means to teach comprehension. (Gallimore & Tharp, 1993, p. 194)

Vygotsky (1992) suggested that the most effective way of teaching literacy lies in adopting a mediation method which both guides the learner and is adjusted during social interaction between learner and teacher. Karpov (2003) posited that school instruction should be built around teaching students scientific knowledge that consists of methods of scientific analysis in a variety of domains. He stated that traditional school instruction does not meet this requirement and consequently learners are forced to use empirical learning to develop their spontaneous concepts to deal with subject domain issues. In Vygotsky's doctrine of scientific concepts, the teacher does not so much impart knowledge as collaboratively construct knowledge through the social context of learning. From this perspective then, children have the information necessary to construct meaning, but the teacher provides the structure and the questions that can provoke the organization of information (Gallimore & Tharp, 1993). Once the teacher has put strategies in place to facilitate learning, the teacher guides students in applying those strategies whilst adjusting her support when needed, consequently when teaching reading a number of strategies would be employed (Dixon-Krauss, 1996):

- Comprehension of a text through learning skills such as prediction, sorting of information and making inferences;
- Word identification through contextual relationships and decoding of phonics and symbols;

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- Text structures through identifying the main points of a story, subtexts and problem solving.

According to Dixon-Krauss (1996), it is then important for the teacher to reflect on whether the learners have understood the text, where they may still need support and what strategies the learners employed to arrive at their understandings. This type of metacognitive reflection is essential to success of the teaching and learning process as it is through the adjustments that are made within the learners' ZPDs that new learning is achieved.

Gallimore and Tharp saw teaching as being predominantly linguistically based and to be an "assisted performance through the zone of proximal development…which can be said to occur when assistance is offered at a point in the ZPD at which performance requires assistance" (1993, p. 177). They suggested that psychology has identified six forms of assisted performance that the teacher should adopt when facilitating learning. These are given in the table below.

Table 1: *Forms of pedagogic assistance (from Gallimore & Tharp, 1993, p. 180-183).*

Modeling	This is the process of either intentionally/non-intentionally of offering behaviour for imitation. As the child observes/imitates adults they begin to master the more dominant or culturally determined forms of behaviour.
Contingency management	This is behaviour management through a system of rewards and punishment that follow a desirable/less desirable behavioural act. The rewards can include things such as positive verbal feedback, stickers, star charts whilst the punishments are restrictions or loss of privileges.
Feedback	This is information that is conveyed to the learner following a behavioural act or piece of work. It is considered to be a powerful tool for guiding improvement in a learner.
Instructing	Instructions should be used to assist the performance of the next specific act necessary for movement through the ZPD.
Questioning	Questioning contains the implicit instruction. Questioning, in contrast to instruction, provides a distinct and valuable means of assisting performance. Questioning explicitly calls for an active linguistic and cognitive response. During this exercise of the pupil's speech and thought, the teacher will be able to assist and regulate the students' assembling of evidence and their use of logic/problem solving.
Cognitive structuring	Cognitive structuring refers to the provision of a structure for thinking and acting. It may be a structure for belief, for mental operations or for understanding. It organizes, evaluates, groups and sequences perception, memory and action. Cognitive structuring can be about breaking down information into ways that assist learners to understand or it can be about organizing information to help learners to memorize or internalize it.

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It is the combination of the aforementioned assisted performances that is considered to facilitate the acquisition of early reading competencies. In this way, the teacher helps children to build bodies of generalizations that they can internalize and draw from when mastering new concepts related to reading and writing.

2.9 Vygotsky and literacy

"To devise successful methods of instructing the school child in systematic knowledge, it is necessary to understand the development of scientific concepts in the child's mind." (Vygotsky, 1962, p. 82). Vygotsky's work on the relationship between thought and language helps us to understand how children learn and its significance for how teachers should teach to facilitate the acquisition of early literacy competencies. He described how, at the age of about two, the separation between thought and language is no longer present, but rather a new form of behaviour is initiated through the child's need "for words and through his questions he actively tries to learn the signs attached to objects" (1962, p. 43). In this way, Vygotsky suggested that the child has determined that words have a symbolic significance which then transforms speech into an activity which allows for intellectual growth.

Schematically he defined thought and speech as two intersecting circles with the area of intersection as the emergence of verbal thought. In other words, when children have internalized the symbolic significance of speech, they develop verbal thought. Thought development is, therefore, fundamentally linked to language by the sociocultural experiences of the child. In the classroom environment, opportunities to build word-meaning knowledge through social interactions are the beginning of a complex process in which the child learns a new word in its most general sense. The word evolves, replaced by new definitions of a "higher and higher type" (Vygotsky, 1962, p. 83). Ultimately this process leads to the

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formation of true concepts which, according to Vygotsky, might encompass the child's generalizations on word formation, enabling the child to read and write.

According to Gallimore and Tharp (1993), Vygotsky suggested that everyday concepts are learned "upward" from a sensory experience to generalization, but that schooled concepts are learned "downward" from generalization to a tangible example. It is in the school environment that the everyday concepts become organized, tool-like and autonomous. The object of schooling should be to facilitate this developmental process through teaching the skills of reading and writing which open the doors to intellectual development.

> Text becomes meaningful because it has become woven into the student's system of meanings and understandings……this constant connecting of schooled concepts and everyday concepts is the basic process of understanding the world used by mature schooled thinkers. (Gallimore & Tharp, 1993, p. 195)

If we accept that it is the combination of language and social interaction that results in intellectual development, then we must accept that, in the school environment, teachers should create opportunities for learners to engage in discussion and collaborative learning. This research revealed, however, that teachers in some foundation-phase classrooms engage in a form of collaborative learning, but that this does not maximize the potential for individual and discursive collaborative learning. The reasons cited were that the CAPS (2011) curriculum did not afford the opportunities for what is considered a "time-consuming" method of instruction and that the teachers did not feel sufficiently equipped to engage in this style of education. This is further borne out by Gallimore and Tharp's (1993) suggestion that teachers generally do not have the space in classroom time to address individual ZPDs and need to be consciously instructed in how to use the skills necessary for working within a ZPD, because the teachers' own experiences are not sufficient for them to succeed in this regard.

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To understand the importance of Vygotsky's approach to literacy instruction, it is necessary to briefly examine the three current movements in Western literacy instruction and learning.

2.9.1 Constructivism

In a constructivist approach to reading, learners draw on text information and their prior knowledge to help make assumptions about meanings embodied in text and construct a joint understanding. The key aspect of a constructivist model is that the students are actively engaged in constructing knowledge. This is consistent with a Vygotskian perspective whereby the learners work within their ZPDs and in collaboration with their teacher or more competent peers to internalize their understanding of the activity in hand. Vygotsky's theory contributes a socially mediated dynamic within a cultural-historical framework.

2.9.2 Emergent literacy

The concept of "emergent literacy" was first evidenced in Mary Clay's (1966) work and refers to a continuous period of a young child's development. This would include all attempts at communication using symbols, such as scribbles, drawing and print. Vygotsky's contribution lies in broadening our understanding of the importance of "make believe" play as a rich source of emergent literacy, because socio-cultural activities take place in this realm and enable the child to develop a deep understanding of language, both written and spoken. Individual ZPDs are mediated within "make believe" play, usually through a more competent learner directing the actions of less capable learners, but, as was seen in Harrison (2011), the educator has an important role to play as a "conscious mediator" within a make-believe play context (Karpov, 2005).

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2.9.3 Whole language

Through immersion in a "print-rich" classroom environment, learners in a "whole language" context become aware of print and its many functions. A whole-language classroom does not emphasize explicit skills-based instruction, preferring to present meaning-seeking opportunities. The conventions of spelling, phonics, punctuation and pronunciation are not strictly adhered to, which allows for learners to experiment and approach reading within a meaningful context rather than as isolated symbols or, as is frequently the case in South African classrooms, via a word list that must first be mastered before the children may read or write. This is in keeping with Vygotsky's perspective that children must use their existing knowledge together with a meaningful context in order to be motivated to learn and to internalise new knowledge. The whole-language classroom supports Vygotsky's concept of the ZPD in that the educator must observe the needs of individual learners and adjust their mediation according to those needs. The teacher is more than simply modelling a particular aspect of learning; she is actively working with the learners to support and collectively build bridges of understandings through social interaction (Dixon-Krauss, 1995).

> The mediation model of literacy instruction reflects Vygotsky's ideas about instruction within the ZPD. It guides the teacher in making instructional decisions about analysing the student, the text, the type and amount of mediation he needs to provide for a continuous process of literacy development because each episode of social interaction (purpose, strategy and reflection) leads to a new episode and the creation of a new Zone of proximal development. (Dixon-Krauss, 1996, p. 24)

According to Yetta and Kenneth Goodman (1993), Vygotsky saw the child as needing to be immersed in language in order for literacy learning to take place. This is at the heart of the whole-language approach to teaching reading in that written and spoken language is seen to be more readily learnt in contexts of use. Through using language, particularly in play, the

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child masters control over the personal usage of language (Harrison, 2011). This is then transferred into transactions between the reader and the text when the reader is continuously problem solving and developing strategies to comprehend the symbols on a page. For Vygotsky, the teacher serves as the mediator between the learners and their literate environments, whereby each school experience is a "complex cultural activity" (1978, p. 118). By this it is meant that the teacher affords the learner the opportunity to test personal, spontaneous and scientific concepts. Goodman and Goodman (1993) defined the complexity of the cultural activity as being the "knowledge learners bring to the making of meaning, the knowledge and the relationships between the people in the environment who interact with the learners and the particular environment itself that influence how easily and how well reading develops" (p. 231).

2.10 Collaborative learning strategies

The Vygotskian approach to literacy instruction can be seen as largely a collaborative effort (Jennings & Di, 1996). The idea of collaborative learning according to Matusov (2001), is derived from a socio-cultural approach to learning and development whereby students are seen to take responsibility for their own learning and the teacher as a guide to facilitate the construction of knowledge. Vygotsky claimed that human development is relational, consisting of internal consciousness which is transformed through interaction with external mediated behaviour within a social context. The social context is fundamental to cognitive growth as the learner regulates the external and internal through psychological tools which are generated through social interaction. Collaboration may be a simple teacher-learner relationship or a more complex group dynamic in which a variety of learners present a range of individual ZPDs which contribute to a collective understanding of an activity.

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A Vygotskian framework of collaboration affords the educator with an arguably appropriate understanding of teaching and learning. "Vygotsky's approach starts exactly where the real world is: in authentic social interaction." (Jennings & Di, 1996, p. 80). By this it is meant that it presents a realistic picture of the complexities of human development and extends the horizon of education into a social dimension. Matusov(2001) identified three mutually related principles that constitute a shared focus of attention. These include the shared object of the activity, shared communication and authenticity of the activity for the participants.

What then are some of the benefits of collaborative learning?

- The teacher is able to observe her learners and meet their individual needs more effectively. The learners are able to have their individual needs met and to develop confidence in their academic abilities.
- Collaborative analysis of texts or dramatizations of texts help learners to become excited about reading.
- Learners need opportunities to examine texts critically and creatively. Collaborative learning presents this type of opportunity.
- The group situation forces children to engage in higher-order thinking skills, such as application, analysis, synthesis and evaluation, rather than operating continually at the knowledge and comprehension levels.
- The group environment can challenge children to perform at the maximum level of their potential development.
- Children acquire social skills when working in a group setting, such as listening to others, taking turns, contributing ideas, explaining oneself clearly, encouraging others and criticizing ideas rather than people. These social skills are essential to academic progress (Harrison, 2011).

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- Collaborative learning promotes an understanding of differences, whether those differences result from ethnic backgrounds, gender or handicaps.
- Collaboration increases motivation to learn, because learners feel validated in their opinions and collective ideas help to maintain focus on a subject.
- Collaborative learning is a guided, active pursuit rather than a forced passive submission to teaching. It is interactive and dialectic. It is ideal for a large classroom because it provides multiple ways of learning within one classroom. Collaborative groups provide children with choices and avenues to match learning to their interests and developmental levels, and therefore make the teacher's goal of serving all the children more attainable. (Adapted from Jennings & Di, 1996)

Collaborative learning may, at times, appear chaotic and random; for example, when foundation-phase learners indulge in make-believe play, but according to Karpov (2005) the educator must consciously mediate and creatively engage in teaching. This process of conscious mediation begins with identifying the individual ZPD of each learner in the classroom. This is achieved by employing such methods as daily observations; questionnaires to solicit children's interests and attitudes; talking to the children and determining a classroom sociogram (Jennings & Di, 1996). In this way, the teacher can select collaborative groups that have the best possible potential for success.

Jennings and Di (1996) stated that groups should ideally be heterogeneous if a ZPD scenario is to work. In the traditional South African classroom we divide classes into common-ability groups which reduces the potential for more capable learners to collaborate with less competent learners. Furthermore, for collaborative learning to succeed, learners must be able to co-operate with one another. This can be achieved by consciously structuring a group with each member being responsible for a particular aspect of learning (Aronson, Bridgeman & Geffner, 1978). It can also be achieved when the educator is aware of the

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emotional component present in learning and makes an effort to promote appropriate emotional competencies (Harrison, 2011).

Matusov (2001) warned that a conflict in goals may cause tension or disagreement in collaborative learning, but that it is important to allow for disagreement as it presents opportunities to develop emotional skills such as respect and self-control. The different perspectives that emerge in a collaborative learning situation are the result of diverse attitude, life experiences and beliefs. Success in management of a collaborative learning environment is, according to Matusov (2001), dependent on the teacher providing regular opportunities to experience collaborative learning, establishing the space for reflection on learners' group work, promoting social skills around group work, and consciously guiding learning without taking over the process.

2.11 What is meant by "literacy"?

Some of the complexity of literacy is explained in David Barton's (1994) approach. Barton suggested that, when we make meaning of texts we are engaging in the psychological; when we represent those meanings to others, we are engaging in the social, and when we decode semiotics, we are bringing to the experience our historical and cultural background. He referred to this approach to literacy as an "ecological approach" which is embedded in our daily social interactions (1994, p. 29-32). The social, psychological and historical aspects of literacy are, according to Barton (1994), all interwoven and cannot be distinguished from one another. He felt that it is inappropriate for us to simply isolate the symbolic nature of language, as we frequently do in the classroom setting when teaching reading and writing. Literacy for Barton does not exist on a linear configuration with varying degrees of difficulty, but is rather a combination of "different literacies" within varied contexts which serve different purposes (1994, p. 38). These literacies can have different values, some of which we

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create ourselves, but many which are imposed on us, as is the case in the school environment. The school literacies are usually dominant and are created by the dominant institutions of society, whereas the vernacular literacies are part of our social community and everyday lives (Barton, 1994).

Pahl and Rowsell (2006) supported Stetsenko's (2012) suggestion that it is through language that children shape their identity. Within the classroom context, the teacher encounters multiple personalities bringing with them their life experiences and different ways of understanding school languages. Pahl and Rowsell put forward the notion that "We need to build teaching around differences as opposed to a one-size fits all approach that has been adopted in past decades." (2006, p. 6).

Whilst Heath (1983) drew attention to the significance of socio-cultural aspects of literacy that determine particular "literacy events", Street (2005), an anthropologist, gave us an ideological perspective and "literacy practices". This is an abstract concept that is sensitive to behaviour, culture and social practices. Like Heath (1983), Barton (1994) viewed literacy as profoundly social in nature and used in multiple contexts which define how we think and respond. "An ideological approach to literacy, is one that accepts that what is meant by literacy varies from situation to situation and is dependent on ideology." (Barton, 1994, p. 25). Gunter Kress (1997) described how different cultures adopt different approaches to reading. A Western learner assigns meaning through alphabetic language which places the emphasis of understanding on the transcription of sounds, but a Chinese child would be learning through pictograms and would place the emphasis on ideas (Kress, 1997, p. 83). The different cultural and communicative traditions that students bring to the experience affect how they will progress in their schooling (Crawford, 1993, p. 13). This means that "school literacies" ideally need to cater for students from multiple "out-of-school" literacy communities.

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James Gee (2003) would argue that, by not acknowledging the out-of-school literacies, we are negating the very identity of the child and ignoring how literacy shapes learners' identities when they socialize. Gee referred to "discourses" which are the languages we acquire that help us to socially determine our identity (Pahl & Rowsell, 2006, p. 17). He argued that these discourses are not simply verbal, but also connected to our body language, style of dress, acceptance of a particular culture and social group (Pahl & Rowsell, 2006, p. 17). Each individual can have multiple identities which result in code switching and social acceptance.

> It is suggested that methods of making sense are the key to any kind of explanation of the self, as people's sense of themselves is in fact a conglomerate of these methods, produced through talk and theorizing. There is not "one" self waiting to be discovered or uncovered, but a multitude of selves found in the different kinds of linguistic practices articulated now, in the past, historically and cross-culturally. (Potter & Wetherell, 2007, p. 102)

In the classroom environment, this has profound significance as a learner must acquire the appropriate discourse for a particular social group in order to function within that group. "A vital part of warranting one's actions, making them appear reasonable and justifiable, is being able to present different kinds of the self appropriately." (Potter & Wetherell, 2007, p. 108). If our schools are "speaking another language" to that of the out-of-school literacy, then the learners will not be able to identify with their learning environment and may even feel alienated. This will result in lack of achievement and possibly even students dropping out of school (Crawford, 1993, p. 6-7). It would, therefore, appear that it is essential to acknowledge out-of-school literacies in the school environment.

Pahl and Rowsell (2006) agreed that literacy is a social practice and felt that this understanding helps us to realize that literacy is connected to other things: for example,

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hierarchy, identity, global communication and multiple forms of literacy. Barton said "people make sense of literacy as a social phenomenon and their social construction of literacy lies at the root of their attitudes, their actions and their learning" (1994, p. 28). Researchers have made the distinction between "school literacy" and "out-of-school literacy" because it helps educators appreciate that "schools have not yet adapted, modified or revised their curricula and instruction to account for the significant changes in the makeup of the growing culturally diverse population" (Crawford, 1993, p. 25). If we accept that learners bring their cultural resources to school literacy and learn socially, as suggested by New Literacy Studies (NLS), then we have to adapt how we help learners to acquire literacy.

Pahl and Rowsell (2006, p. 23) suggested we should acknowledge that school is only one domain in which literacy occurs and that the nature of that literacy is frequently different from school literacy, but is equally important as it helps to shape who we are and who we are allowed to be. Despite the fact that schools promote a socially valued, high status resourced approach to literacy, we need in some way to validate out-of-school literacy if we are to solve some of the problems associated with literacy in schools. Heath (1983) said that schools should be places that allow children to capitalize on the skills, values and knowledge they brought to the classroom and that it is the teacher's role to add to the conceptual structures that are imparted in the classroom.

Mahiri and Sablo (1996, p. 165) strongly advocated a more authentic approach to education in which we close the gap between students' "real lives and their lives in school". Prinsloo and Breier felt that we need "to pay attention to the characteristics of literacy in modern society and incorporate this in our curriculum development, guarding against seeing 'school literacy' as the model of the ideal, thereby preferring not to recognize the diversity and dynamics that comprise social literacy that has its origins outside of the formal classroom environment" (1996, p. 29). Cummins (2004) added to this perspective by saying that

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teachers can help children to retain and develop their mother tongue by communicating to them strong affirmative messages about the value of their language and that it is advantageous to be multilingual. Tshidi Mamabolo's (Stein & Mamabolo, 1997) cry that "pedagogy is not enough" suggests that working in the classroom is not enough. We need to build a bridge of communication between parents and the school, "establishing a constant traffic between homes and schools with reciprocity from all sides" (Stein & Mamabolo, 1997, p. 39). School literacy should not just be about "transferring ideas from head to head but …about negotiating the kind of relationship we wish to have with our conversational partners…. for language comes from each of the worlds that connect to our words – the worlds of thought, reality, community, emotions, and social relations" (Pinker, 2007, p. 3).

> Above all, literacy is about meaning. This seems obvious and yet is sometimes lost in the plethora of spelling tests and standardized testing. Children use literacy to make meaning and to explore the constraints and possibilities of their worlds. Literacy offers imagined worlds, and its possibilities are endless. Meanings, however, are inscribed within practices, and these practices shape meanings and identities. …..and argue that the everyday cultural practices are what our students bring to the classroom. It is time they were heard. (Pahl & Rowsell, 2006, p. 139)

2.12 Summary

This chapter has addressed a variety of ways in which social, cultural and historical backgrounds can impact on a learner's development. According to Muthvhi (2008), Vygotsky saw the psychological development and functioning of the learner as primarily a social and cultural process which is shaped by the mediation of behaviour, in this case that of the teacher and the learner in a classroom context. The social and cultural nature of these

interactions are determined by pre-existing rules of society and the culture within which they are located. Since democracy in 1994, the South African education system has undergone a number of changes in its quest to raise the nation out of poverty. The changes in curriculum, together with the changes to the ways in which teachers are trained, and the challenges faced by the children of our nation, have resulted in a complex cultural-historical setting in which learners must acquire early literacy competencies.

Karpov (2003) considered Vygotsky's doctrine of scientific concepts to be a powerful tool for the analysis of existing approaches to instruction and for the development of new approaches. This understanding guides the present study and the analysis of classroom practice in South African foundation-phase classrooms. What this looks like helps us to deepen our conception of how children learn and how best to meet their needs. The following chapter will examine literature pertaining to the current state of knowledge on how children learn, issues linked to the curriculum development since democracy, pedagogy in multilingual contexts, and the use of a socio-cultural framework for literacy instruction and research.

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3. Literature Review

This chapter examines the literature on the teaching and learning of reading, particularly within diverse linguistic and cultural contexts, and how pedagogy can be organized to achieve greater success. It maps out the current orientation of South African primary education with regard to literacy. How the post-1994 curriculum changes affected literacy education is examined. This entails an examination of Outcomes Based Education, Revised National Curriculum Statement, Curriculum 2005, and a brief look at Curriculum and Assessment Policy Statement (CAPS), rolled out in 2012, specifically in regard to literacy-related policy for foundation phase. The National Reading Strategy of 2008 will be discussed to understand how it has informed pedagogic practices. Challenges faced in linguistically and culturally diverse settings in South Africa will be discussed. Past experiments and potentialities in the study of literacy education, and how they have contributed to current knowledge, will be considered.

3.1 Current state of knowledge

The understanding of how students acquire literacy has changed from viewing literacy as a simple skill neutrally imposed on a learner with the intention of achieving automatic economic empowerment, to one in which social, cultural, historical and ideological components must be acknowledged (Street, 2005). Studies have been carried out across various disciplines to gain deeper insight into how people acquire language and learn to read.

Shirley Brice Heath's (1983) ethnographic study of families in Trackton and Roadville, USA, helped linguists understand the significance of the home environment ("out-of-school" literacies) in preparing learners for the school setting (Barton, 1994). She focused her research on underprivileged families, looking at the socialization practices of "working class" black and white families and how their approaches to literacy vary. Her research showed that

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categorizing children according to their socioeconomic status as a means of demonstrating their deficiencies was not taking into account their true literacy skills (Heath, 1983). For example the children raised in Trackton families were not specifically read stories; texts were not explained to them and no special routine was followed in their day. They were, however, constantly surrounded by adult conversations and encouraged to participate in their community. When they related stories they were grounded in what has actually happened in their lives as opposed to the fantasy stories told by Roadville children who were guided in their literacy experiences (Heath, 1983). The Roadville children were read stories at bedtime, encouraged to answer questions or anticipate conclusions around the stories that were read. Strict boundaries were taught pertaining to social language such as what is considered acceptable practice when greeting a person. The place of language in the cultural life of both the Trackton and the Roadville communities was interdependent on the habits and values shared among the respective groups. These daily literacy practices provided children with different literacy skills.

Heath demonstrated that American middle class families consciously socialize their children to use *"initiation-reply-evaluation"* (IRE), which is the traditional westernized style used in classrooms when closed questions are asked (Heath, 2001, p. 320). By this it is meant that the educator already knows the answer to the question being asked of the learner, *initiates* a response from the learner, and then evaluates that response on the basis of what the teacher perceives as being the *right* answer. The respondent is not required to think about the answer, but rather look for the obvious in a text. The learner is not encouraged to provide an alternative answer as the understanding is that there can only be one right answer (Heath, 2000). In this way, children who have learnt IRE, have an automatic advantage over children who come from a different cultural background and have been socialized differently (Crawford, 1993, p. 10).

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Heath referred to "literacy events", meaning how the individual regularly interacts with texts, and the resources he/she brings to this experience, (2001, p. 319). These literacy events identify the wider activities that give shape to particular moments of reading and writing, its significance for the child and the socialization that takes place. For Trackton children, their learning was absorbed through their interaction with the reality of their daily lives within their community. For the Roadville children, their learning was actively guided by their caregivers, but both styles of literacy have relevance and validity. Heath (1983) suggests that teachers should make school a place in which children are allowed to capitalize on the skills, values and knowledge that they bring and to add the conceptual structures imparted by the schooling context.

Perhaps the most important aspect of Heath's (2001) research was to raise awareness about the different ways in which children learn to use language and how these "out-of-school" literacies affect their performance "in school".

> In some communities these ways of schools and institutions are very similar to the ways learned at home in other communities the ways of school are merely an overlay on the home-taught ways and may be in conflict with them. (Heath, 2001, p. 318)

Heath (1983) identified three salient points regarding how communities socialize their children. Firstly she stated that the patterns of language usage in a community are generally in accord with and mutually reinforced by other cultural patterns namely space and time, problem-solving techniques, group dynamics and loyalties and favoured patterns of recreation. Secondly, she determined that factors involved in preparing children for schooling are deeper than the formal structures of language, amount of parent-child interaction and consequently concluded that the dynamic is more complex when trying to account for academic success. Some of this she posited came from an attitude that was perpetuated in poorer communities which suggested that children were not likely to succeed because their

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parents had not done so. Thirdly, she regarded the patterns of interaction between oral and written uses of language as varied and complex with the more traditional oral-literate dichotomy as not capturing the ways other cultural patterns in each community affects the uses of oral and written language. By this she meant that different communities would have different opportunities for writing and reading of prose or oral discourse around written texts and that this would affect the child's capacity to address school texts. According to Muthivhi:

> The majority of children who are early readers in South African schooling come from social settings where they scarcely engage in activities that generate general competence for reading in the early years of their childhood before they begin formal schooling. In addition to this social reality, the social activities that characterise the majority of South African children's relations with their parents and other adult members of their families, beside the language medium in which these occur, rarely model the kinds of activities and modes of relations that formal school learning and written texts emphasize and privilege. (In press, p. 5)

This would suggest that how teachers approach the teaching of reading must take into account the learners' cultural backgrounds and foster an understanding of how children learn. Bloch (2006) explained how many African learners, coming from homes in which access to story books are deficient, and who have an oral language tradition, experience written language for the first time in the school environment. This, she says, can lead to confusion, especially when there are no stories available to help provide a recognizable cultural context necessary to facilitate reading and writing skills. Furthermore, Bloch (2006) suggested that excessive emphasis on "school readiness" limits potential for meaningful engagement with texts which would help establish a foundation for reading and writing. This she sees as being at the heart of the failure to improve our literacy rates.

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Literacy, according to Bloch (2006), is not only inappropriately conveyed from the point of view of a lack of proficiency on the part of the educator, but the lack of relevant cultural context in the classroom environment also hampers the learner in establishing a foundation for literacy learning. She argued that the dearth of African language teaching resources and books available to Grade-1 readers does not facilitate their developing confidence in their language and reading competencies. It may, therefore, make sense to draw from learners' existing knowledge to develop culturally relevant reading materials in a collaborative learning environment.

Bloch, Stein and Prinsloo (2001) argue that educators have only recently begun to understand the differences between phonic-centred and whole-language literacy pedagogies. They put forward the notion that we need to understand the extent to which these pedagogies are helping or hindering literacy acquisition. Muthivhi argues that in South African classroom practice, teachers are conflicted between teaching "the process of phonological decoding and the semantic and contextual processes on the other hand" (In press, p. 9). He suggests that this conflict is exacerbated by teachers' perceptions of the demands of the curriculum and their personal experience of "what works". Furthermore, he posits that, while our policy documents appear to stress the quest for meaning making, they are not "sensitive to the contextual conditions of literacy teaching and learning; conditions that suggest intricate connections between the cultural content of literacy embodied in the specific traditions of schooling and the specific nature of the written text" (In press, p. 9). Helping both learners and teachers to develop the tools for rationalizing this complex environment would be essential to promoting the acquisition of early reading competencies. Pretorius (2000) stated:

> Successful learning is essentially the ability to integrate new information with existing knowledge and then modify and expand existing knowledge, and that is what effective reading comprehension entails – constructing meaning so that new incoming

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> information on the page is integrated with existing knowledge structures in memory and with given information already encountered in a text. Academic success relies on successful learning; successful learning relies on the ability to read. (Pretorius, 2000, p. 39)

According to Pretorius (2000), in South African schools the two main categories of reading skills, decoding and comprehension, do not necessarily cohabit in the knowledge base of our average learners. Learners' reading skills are developed in the first four years of schooling through the medium of mother-tongue basal readers. The emphasis, however, is more on decoding than comprehension and "reading as a language and information-processing skill is largely taken for granted, the assumption being that once children have "cracked the code" they can use their decoding skills to make sense of the information they read"(Pretorius, 2000, p. 34). It is then anticipated that learners can transfer their knowledge of mother-tongue reading to a largely English medium of instruction. Added to this is the complication that the nature of the texts that pupils encounter, change from being largely narrative to more expository and are unfamiliar to their frame of reference.

A further complication in developing reading competencies is the excessive emphasis on traditional rote-based modes of teaching and learning that have left little room for a more critical engagement with new knowledge. This was the conclusion of Muthivhi and Broom (2009) who conducted research among Grade Seven learners in Venda to closely examine the assumptions that lie beneath South Africa's progressive educational ideals. Their paper, which was informed by Vygotskian and Piagetian theory, required learners to determine the colour of a cardboard circle that was covered in foil. This necessitated some problem solving skills and a sense of freedom to discuss the "possibilities" (Muthivhi & Broom, 2009, p. 4). Muthivhi and Broom (2009) concluded that, because learners had been taught to simply accept texts without question and teachers were reproducing apartheid ideology in an

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uncritical manner, learners were afraid to consider an alternative colour beneath the tinfoil. They were unfamiliar with engagement with complex statements and, consequently, questions had to be repeated. Knowledge had to be pre-packaged and not open to dispute.

The traditional modes of schooling, as described by Muthivhi and Broom (2009), are considered problematic because they do not facilitate the development of critical faculties that permit learners to build on their formal operational thought processes. This would suggest that learners have not learnt to read in a way that helps them to comprehend the meaning in a text. Muthivhi and Broom (2009) advocated the importance of considering a socio-cultural approach to teaching because it has the potential "to generate and elaborate on the formal operational thought processes during the subjects' learning and development" (p. 15). Muthivhi and Broom's (2009) research is beneficial to this thesis because it reaffirmed the importance of moving away from traditional modes of teaching and establishing pedagogic practices that allow for collective meaning-making.

Our current state of knowledge is therefore one that considers the complexity of the South African schooling environment, but is struggling to find tools for learning that can enable learners to develop the capacity to meaningfully engage with texts and consequently to progress academically.

3.2 Curriculum development and policy documents

The curriculum provides a framework through which we shape and give direction to how teachers teach and learners learn. It provides the aims and intentions from the "top down" with a view to guiding the teacher in implementing a vision for future generations. In this respect South Africa has attempted to create progressive curriculum documents intended to right the wrongs of the past and assist teachers to promote literacy and numeracy for all citizens.

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Despite the aforementioned intentions, Fleisch (2008) posited that an overview of South Africa's basic education and literacy instruction reveals an apparent inability to provide a solid foundation in basic reading and writing skills for 80% of learners. The results of the 2011 Annual National Assessments (ANA), the Department of Basic Education's nation-wide test of literacy and numeracy, revealed that the overwhelming majority of South African children complete their primary schooling without proficiency in reading, writing or numeracy (Fleisch, 2011). "A characteristic feature of academic underperformance in South Africa is poor reading ability" (Pretorius, 2000, p. 33). This has been attributed largely to issues such as discrepancies between more privileged schools and the vast majority of schools which are situated in impoverished socio-economic circumstances as a result of our apartheid history (Alexander, 2002). Problems around how to acknowledge eleven official languages and what the medium of instruction should be in classrooms, availability of appropriate teaching resources and quality teaching, are but some of the challenges faced when trying to establish a culture of learning (Fleisch, 2011). Muthivhi and Broom put forward the notion that South African schooling from the socio-cultural perspective could be considered as providing a "cultural context characterized by rapid change from the authoritarian, apartheid schooling to the contemporary post-apartheid dispensation" (2009, p. 3). It has also been suggested that frequent changes in curriculum since achieving democracy have aggravated the problems between policy and practice (Taylor, Fleisch & Shindler, 2008).

With democracy in 1994 came a precipitous change in curriculum and the advent of Outcomes Based Education (OBE). Once approved in 1997, OBE was phased into schools from 1998. The emphasis on outcomes was meant to provide educators with a clear understanding of what they should be achieving in the classroom. According to Jansen (1998), achieving understanding on the part of the teacher and learner was rendered problematic by the confusing language evident in this policy document. Teachers were

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required to get to grips with concepts such as "competencies, unit standards, learning programmes, assessment criteria, range statements, equivalence, articulation, bands, levels, phases, curriculum frameworks" (Jansen, 1998, p. 323). Furthermore, the teacher, who was now seen to be a "facilitator for learning", was required to bring about a massive change in the social structure of the classroom, often without the resources or the "know how" to do so. Jansen claimed that this change was unrealistic because it was based on "flawed assumptions about what happens inside schools, how classrooms are organized and what kinds of teachers exist within the system" (1998, p. 325).

1997 saw the creation of the Language in Education Policy (LiEP) which aimed to uphold the importance of cultural diversities and multilingualism (Dornbrack, 2009). Mother-tongue education was seen as fundamental to the early years of schooling, with mother-tongue instruction up to Grade Three and at least one additional second language from Reception year (LiEP, 1997). Howie, Venter and Van Staden (2008) posited that the reality of South African schooling is complex, because white, Indian and Coloured children continue to receive their schooling in the same language (namely English or Afrikaans) from Grade One to 12, while the majority of African-language speaking learners switch from Grade Four to receive their instruction in either English or Afrikaans, irrespective of the government's language policy.

Howie *et al.*'s (2008) overview of the effects of multilingual policies on performance and progression in reading literacy in South African primary schools, paints a picture of conflict between policy and practice. Children come from home backgrounds that do not promote reading, teachers are not proficient in English, and classroom practices are ineffectual. These realities of the South African classroom make it problematic to address the issues of teaching reading in a multilingual classroom. Baatjes (2003) overview of reading policy, programmes and campaigns in South Africa since 1994, concluded that what was

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required was tighter monitoring of reading instruction in schools, revision of the school day to ensure that enough reading is practiced, a sustainable supply of reading resources, and an umbrella organisation appointed to coordinate the efforts of all working in the field of reading, with more research done on reading in educational institutions.

The National Curriculum Statement (NCS), or Curriculum 2005, was a further attempt to improve literacy rates and to hold teachers accountable for their performance in the classroom (DoE, 2001). The NCS was a continuation of OBE with the emphasis remaining on outcomes. The type of citizen that was envisaged emerging from the new curriculum should be responsible and capable of exploring educational and career opportunities (DoE, 2002, p. 1-2). Ten hours per week was stipulated as essential to the teaching of reading and writing in Foundation phase. This policy document stressed using a balanced approach and identified five critical areas of reading that needed to be addressed. These included phonics, phonemic awareness, fluency, comprehension and vocabulary. According to Macdonald (2002), the processes of early literacy acquisition seemed to be ignored in the interpretation of this policy document, with teachers assuming that learners would incidentally learn to read and write. A committee was formed to revise the curriculum as it was seen as too complex and not sufficiently teacher-friendly.

The Revised National Curriculum Statement (RNCS) followed NCS and was designed to ensure that every South African learner be able to read, write, count and think (DoE, 2002). With this in mind, 40% of teaching time in Foundation phase was allocated to literacy tasks. The teacher was now meant to provide tools to help the learner to read with understanding, decode texts, locate information and summarize and follow a thread of an argument in a text. Beginning in Grade R, the curriculum now acknowledged "emergent literacy" where learners were encouraged to handle books and pretend to read. In Grade One, a basic reader remained

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the primary tool used to establish a foundation of reading skills through emphasis on phonics (DoE, 2002, p.23).

This "bottom-up" approach of emphasizing phonics requires the learner to first understand the significance of individual letters and words before focusing on comprehension of a text. The problem with this approach is that acquiring skills in decoding does not automatically mean that skills in reading comprehension have been achieved (Pretorius, 2002). The alternative approach is that of "whole language" whereby the learner examines the complete text and predicts meaning. This draws heavily from prior knowledge on the part of the learner. A combination of these two approaches was suggested as potentially more effective in the Curriculum and Assessment Policy Statement (CAPS) of 2011.

In 1991, the Southern African Consortium for Monitoring Education Quality (SACMEQ) was launched to evaluate the quality of basic education. SACMEQ consisted of fifteen countries: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe. In 2005, the SACMEQ study which focused on reading and mathematics, showed that South African children's achievement levels had remained problematic. Approximately half of the randomly selected sample of 3163 learners in Grade Six were not able to read for meaning in a text (Fleisch, 2008). This indicated that, despite the changes in curriculum and assessment policies which emphasized the need to promote reading for meaning, they were not having the desired effect.

When systemic tests were introduced in 2003, results revealed that literacy rates were falling short of the mark. 51 000 randomly selected Grade-3 learners were required to complete three assessment tasks using multiple-choice and free-response questions. On analysis of the results, the average score for reading and writing was 39% (Fleisch, 2008). This systemic test provided evidence that many foundation-phase learners were struggling to

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read and that there may be problems with the curriculum. In 2005, the Department of Education provided results for the Grade Six systemic evaluation which revealed that only one learner in ten (10%) was at the standard required by the NCS (Fleisch, 2008). Furthermore the shift between the Annual National Assessments of 2011 to 2012 showed that Grade One literacy had gone down a percent from 59 to 58.

The PIRLS (Progress in International Reading Literacy Study), undertaken in 2006, indicated that the average performance of Grades Four and Five South African learners was the lowest of all the forty countries participating in the study. Most concerning was the fact that nearly three-quarters of the Grade Five South African participants were unable to reach the international benchmark demonstrating proficiency in basic reading skills (Fleisch, 2008).

PIRLS (2006) examined not only the application of a standardized test but also school and home factors that may influence learners and their ability to acquire basic reading skills. Data was gathered by means of questionnaires completed by learners, parents, teachers and school principals. Although the questionnaires revealed that many schools had reading programs in place, PIRLS (2006) indicated that there is little relationship between hours of teaching instruction and acquisition of reading skills. This could be attributed to instructional time being used inappropriately or for activities that do not promote the development of reading competency (Fleisch 2008). It is Fleisch's comment about the use of instructional time which is important to this research as it suggests that having a progressive curriculum is not sufficient. It is rather what happens in the classroom that is key to success in the acquisition of reading competencies.

2008 saw the development of a National Reading Strategy which specifically aimed at promoting fluency and comprehension in learners' reading skills. This management tool was meant to provide a common vision for improved teacher competency and learner reading level. The National Reading Strategy was an official acknowledgement that South African

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teachers experience difficulties in teaching reading (DoE, 2008). Surveys conducted at the core of the National Reading Strategy revealed a country with only 40% of the parents having completed primary school, 7% of schools having libraries, high learner-educator ratios, and school-language policies that did not cater for the learning needs of students. This policy suggested that South African teachers lacked in-depth understanding of the teaching of reading and writing and that many of teachers are poorly qualified and need explicit training in how to teach reading (DoE, 2008, p. 7-8). Making use of specifically designed Early Grade Reading Assessment tools was meant to enable teachers to develop skills to assess the efficacy of their teaching methods. These tools were available in all official languages and used to establish benchmarks for improvement in the acquisition of early reading competencies.

Some of the tools provided were an additional half-hour of reading either at the beginning or at the end of the day, DVDs that modelled good reading and classroom management practices and workshops to train teachers in these methods. Anecdotal evidence, however, has been that teachers are resistant to attending workshops in school holidays and that the reading half-hour is frequently taken up with administrative tasks and not reading.

In 2011, the Curriculum and Assessment Policy Statement (CAPS) was heralded as the answer to existing problems and was rolled out in 2012 in Grades One, Three and 10 (DBE, 2011). This document aimed to define exactly what teachers should teach and within specific weekly timeframes. CAPS (2011) could be described as a more explicitly timetabled version of Curriculum 2005, with some changes in terminology, such as subject names being changed to “Home language”, “First Additional Language” and “Mathematics”. The introduction of a First Additional Language (which is usually English) must now take place from Grade One instead of Grade Three as in NCS (2005). CAPS (2011) aims to “ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives” (DBE, 2011,

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p. 9). This suggests that teachers should make learning relevant to learners and draw from their existing knowledge. Furthermore, this new curriculum wishes to promote "active and critical learners" who are not taught by means of rote learning, but rather develop the means to "identify and solve problems; work in a team; organize, collect, analyse and critically evaluate information"(DBE, 2011, p. 9). To achieve the latter, the teacher would need to develop new tools for learning that move away from our old styles of didactic rote learning and that facilitate the development of problem-solving skills, comprehension of texts and collaborative learning. Specific to reading, the learner should be able to "communicate effectively using visual, symbolic and/or language skills in various modes" (DBE, 2011, p. 9). This would entail both explicit teaching of phonic-based skills, opportunities to work with whole language approaches, and collaborative meaning-making strategies.

Part of a teacher's understanding of literacy instruction begins at college or university level when trainee teachers start their journey to promote learning. Janet Condy's (2008) study addressed this issue by informing teachers what the core indicators of an effective teacher of reading should be, through the use of a questionnaire analysis. Condy (2008) explained how the traditional approach to teaching reading and language in South African schools has been to break language down into discreet units such as phonics, grammar and spelling, which are then taught through a rote-learning approach of repetition and drill. The learner is then meant to put together these isolated units of knowledge to create a coherent understanding of reading and writing. This she says results in learners failing to understand the purpose or meaning in texts and therefore being unable to apply their knowledge to academic pursuits.

Condy (2008) identifies several important aspects of teaching reading as including scaffolding appropriate models of language; negotiating the nature of the learning activity between the learner and the teacher; playing language games that will generate reading and

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writing tasks that draw from the learner's existing knowledge and actively collaboratively constructing knowledge. She concluded that the requirements promoted in her questionnaire and perceived by student teachers as essential to effective teaching of reading were in line with our policy documents and in terms of current theoretical studies on how to teach reading. This would suggest that we already have in place the fundamental understanding of what is required but that the problem lies elsewhere. Moll and Greenberg (1993) comment that the traditional schooling systems do not allow teachers much room to manoeuver when trying out new ideas because so much of their time is spent completing the curriculum, testing learners, processing administrative tasks and attending courses. Added to this the aforementioned authors suggest, is the tendency for teachers to favour a comfort zone which adopts a didactic approach.

This is supported by Fleisch (2008) who puts forward the notion that the interpretation of policy documents is problematic because teachers are unclear of the expectations of the policies, have insufficient training and lack a deeper understanding of their subject. The conflict between policy and practice was seen in Bradley and Reiking's (2011) research from the point of view that educators were afraid to deviate from policy documents when experimenting with alternative approaches to teaching.

Bradley and Reinking's (2011) research analysed the quantity and quality of teacher-child language interactions with a view to informing teaching methods and promoting oral language skills at preschool level. Collaborative working partnerships evidenced opportunities for teachers and learners to engage in extended conversations on a variety of topics. Bradley and Reinking's (2011) study provides a number of useful points pertinent to this thesis. They demonstrate the difficulties faced when doing intervention research in a school. The educators and researchers experienced conflict between wanting to try out the suggested methods and conforming to the rules of the school and the constraints of their

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curriculum. Bradley and Reinking's (2011) research did raise the educator's awareness of how much de-contextualised dialogue was taking place in their "book sharing" and they attempted to increase their group work activities. They concluded that the teacher's commitment to a curriculum and their core beliefs can be an inhibiting factor as was illustrated in the teacher's attempts to balance engaging learners in dialogue during meal times and adhering to school rules or personal beliefs by restricting learner's noise levels and encouraging them to eat. It was suggested that when conducting research in a school environment, the researchers should inform the teachers that the research may require them to not only critically evaluate their beliefs and practices, but it may also strain those beliefs and practices (Bradley & Reinking, 2011). This viewpoint is reaffirmed by Stetsenko (2012) who warns researchers involved in interventionist practices, against potentially "harming" participants of a research project. If learning and development are to be meaningful they must be mutually embedded. Consequently as a researcher intending to support teachers in their quest for improved literacy practices, the implicit meaning behind explicit pedagogic practices, must be respectfully and collaboratively constructed.

An overview of policy and curriculum has therefore shown that we are continuing to adjust our official documents to try to meet the needs of both our teachers and learners but that we have a profound conflict between the progressiveness of our curriculum and the realities of pedagogic practice. Developing tools for learning that support both the needs of the learner and the teacher and understanding how children learn and teachers teach, has the potential to reconcile the conflict between policy and practice.

3.3 Approaches to pedagogy in multilingual contexts

There is a consensus in the literature that achievement of a solid foundation in reading competency at primary school level is key to academic success, but teachers' pedagogic

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capacities determine the outcomes (Bloch, 2006; Baatjes, 2003; Rogers, Marshall & Tyson, 2006; Oller, 2007 and Jordaan, 2011). The need to address the challenges inherent in a multilingual and multicultural classroom appears to be universal, with a variety of approaches to both policy and practice being at the heart of a solution to the problem.

Oller's (2007) review of reading instruction in Kenyan primary schools, illustrated how the lack of appropriate reading resources meant that the Bible was the primary text used. Oller (2007) claimed that the scarcity of appropriate indigenous literature resulted in Kenyan scholars developing an attitude that reading is something that should be endured long enough to complete the basic Grade Eight level of school, after which it can be largely ignored. She cited the excessive emphasis on assessment as inappropriate because learners coming from less privileged rural domains do not have the benefit of a solid grounding in English, but are expected to write the same examinations as those learners who have obtained greater proficiency in English through attending urban schools.

Kenyan educators preferred to use a mixture of Kiswahili and English, depending on which language they feel best explains the content of the daily lesson. This meant that learners were not learning any one particular language correctly. Officially, the Kenyan language policy specifies the use of mother tongue in Grades One to Three, followed by the introduction of English as a medium of instruction from Grade Four, and the mother tongue switching to the status of a subject. This requires proficiency in several languages on the part of teachers, which is often not the case. Consequently teachers struggle to teach reading and frequently make mistakes (Oller, 2007).

Oller (2007) described teachers who are struggling to place English into a culturally meaningful context and favour rote learning as a method of instruction. She advocated the use of "situated resources" as a means of combating the lack of indigenous written texts and for making learning more culturally appropriate. By situated resources she means making use

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of local signage, magazines and learners' own oral traditions as a textual basis for teaching reading and writing. This is germane to the research of this thesis as it may be a way of providing texts that learners can identify with when working in a formal school context. Oller (2007) concluded that the current language policy in Kenya is problematic, and a solution can be found through research that investigates how to teach children living in a multilingual society how to acquire reading competencies while retaining their cultural identity.

Resistance to change in the curriculum was evident in Zambia when teachers were required to change from English as the primary medium of instruction to mother tongue, and to adopt a new reading programme. Linehan's (2004) overview of Zambian literacy instruction established the importance of providing appropriate support to educators engaged in literacy teaching in the classroom environment. Linehan's overview of Zambian basic education and language of instruction revealed a country struggling to make the transition from a predominantly English medium of instruction which was leading to poor literacy rates, to the success of mother-tongue instruction through a modified reading program. Thirty years of English instruction had been less than satisfactory, resulting in rote learning as the primary means of teaching to try to compensate for a lack of comprehension. In 1995, the National Reading Committee identified the need for basic literacy in a familiar language by the end of the first year of primary education; basic literacy in English by the end of the second year of primary education, and improved teaching of reading at all grade levels (Linehan, 2004). These changes were initially met with some resistance as educators were afraid to move away from the familiar.

In Zambia, the Primary Reading Programme (PRP) adopted a strategy to fast-track reading and writing skills while building up to a level of spoken English that would allow the skills developed in the mother tongue to transfer to English in Grade Two. The same readers used in mother tongue in Grade 1, were then used in English in Grade Two. In this way the

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learner already had a comprehensive base from which to draw when learning English. PRP was introduced to schools with support for educators at multiple levels, allowing for an improved attitude towards teaching and better pedagogic practices. The support for educators came from policies, administration of policies, mentoring of teachers and ongoing support in classrooms. Practical training in how to use resources, as well as monitoring and mentoring carried out at school level by teams comprising Standards Officers, In-service Providers and Teacher Trainers, meant that the potential for success was enhanced.

Linehan (2004) suggested that the greatest threat to transformation in Zambian schools lay in parents' desire for their children to learn with English as the medium of instruction. To counter this threat, there was a detailed communications strategy through the media. The message that it would be beneficial to learn using mother tongue because it would strengthen literacy competencies in general, was conveyed to the greater public. The success of the message perhaps lies in the desire of many Zambian parents for adult literacy classes to be run in primary schools. This showed their commitment to supporting their children in their learning with English as the medium of instruction as the improvement of the parents' own literacy skills would mean that they could support their children's learning to read and write.

Rogers, Marshall and Tyson (2006) placed postgraduate students into schools and community service establishments to determine their personal teacher identities through internal dialogue, and to deepen their understanding of diverse community literacies. Students were encouraged to use journals as a means to define their thinking. Their research tried to gain an understanding of how one might prepare teachers to teach languages in diverse classroom contexts. Students were placed in one of three different American community-based projects to promote literacy. For Example a community parent-child reading program and a project monitoring literacy for immigrants. Their results showed that students gained some understanding of their own prejudices and that they understood that

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literacy takes place within a social context. Rogers *et al.* (2006) concluded that preparing teachers for diversity remains one of the greatest challenges we face because teachers are asked to teach across complex and diverse educational environments. They suggest that we need to move away from viewing teaching as a rarefied set of competencies, and see it instead as a dynamic social field with complex relational exchanges within which learning can occur.

Du Plessis and Louw (2008) attempted to determine the language challenges faced in South African preschools and answer a cry for help from educators engaged in using English as the language of learning and teaching (ELoLT). They found that 81% of their study group contained Afrikaans first-language teachers teaching English to multilingual classes without being fully proficient in the language of instruction. This echoes the situation described by Oller (2007) in which Kenyan teachers resorted to code-switching and using a substandard version of English. Teachers in Du Plessis and Louw's (2008) study, described problems around behavioural management, completion of daily programs by learners and difficulties comprehending basic literacy, which they attributed to working in a multilingual classroom without the necessary skills. Their research showed that 88% of the participants had received tertiary education and were well qualified, but their training was not necessarily specific to Early Childhood Development (ECD) (Du Plessis & Louw, 2008). Furthermore, while parents expected teachers to teach their children how to speak and use English in academic contexts, teachers expected parents to support this process by speaking and reading English at home with their children.

Du Plessis and Louw (2008) constructed a solution to teaching in a multilingual, multicultural classroom by suggesting that teachers who have experience in teaching in a multilingual classroom can assist those with less experience through "productive staff development" (2008, p. 68-69). They noted that the schools that they researched already had teacher assistants who were capable of communicating in African languages and were of the

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opinion that, if managed correctly, they could be used as a valuable resource to help learners to understand new material. In addition, they saw the peer-tutor in the role of translator or interpreter, helping to convey the teacher's instructions or summaries of lessons. Although 73% of the participants had not received any formal training in how to teach in a multilingual classroom, the teachers concerned demonstrated a willingness to consult with specialists in the field, attend workshops and form collaborative relationships that would deepen their knowledge.

The lack of available reading material in either mother tongue or English in impoverished areas of South Africa, makes it problematic for parents to engage in the type of "book sharing" that Kim, Kang & Pan (2011) described in their study of low-income Latino learners, as so beneficial to the development of language, reading and writing skills. Their research revealed that parents who participate in regular reading periods with their children, and discuss the text being read, facilitate the acquisition of an improved vocabulary, in-depth comprehension of text and more detailed oral expression. This is then translated into better writing skills as the learners progress through preschool to Grade One.

Several attempts have been made to address the deficit in teaching and learning resources in impoverished areas of South Africa, but apparently with limited success (Bloch 2006). Prinsloo and Walton's (2008) study on the introduction of digital literacies in marginalized schools highlighted the misguided concept that, if technology is simply placed in schools, it will automatically result in upliftment and acquisition of new literacy skills. Prinsloo and Walton argued that the addition of technology needs to be matched with appropriate programmes and styles of teaching, or it will simply result in "restricted forms of practice" and students missing the point of a lesson (2008, p. 103-104). Moje supported this when she stated that her research in high-poverty communities demonstrated that there was no obvious improvement in literacy as a result of exposure to digital literacies (2009, p. 357).

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The reason may lie in Kress's (1997) theory that learners must be interested in what they are learning to engage in learning, which suggests that styles of literacy teaching must be relevant to students.

Muthivhi's (2010) study of Grades One to Seven learners' understanding of problem solving and categorisation of words, according to Luria's (1979) work in the Soviet Union, confirms the difficulties around using mother-tongue instruction when the Language of Learning and Teaching (LoLT) is not sufficiently developed to meet formal schooling requirements. His research revealed that South African methods of instruction do not facilitate the development of abstract linguistic terminology and that TshiVenda language creates potential confusion around categorization because cultural norms dictate that natural objects are categorized somewhat differently to the English equivalent. Muthivhi's (2008, 2009, 2010, 2011) research speaks to the challenges faced by educators endeavouring to teach basic literacy within a multilingual classroom setting and suggests that further research is necessary for us to understand how children learn.

> ...functional classification mode, may in fact be a developmental transition between formal processes on the one hand and spontaneous processes on the other hand. The real nature and extent of the manifestation of these transitional processes, as well as the specific implications they may hold for concept development and functioning, need further systematic investigation so the regularities of these learners' learning and development could be more adequately understood and appropriate intervention programmes developed. (Muthivhi, 2010, p. 45)

Muthivhi's (in press) research in literacy classroom practices explains the problems that arise when pedagogic policy does not take into account cultural context, classroom literacy practice, and availability of appropriate resources. The lack of TshiVenda reading matter in foundation-phase classrooms results in teachers giving learners the Bible to read. A text

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which is too complex for this age group. In Venda, teachers attempt to make use of the "big book"[5] provided by local authorities, to engage in shared reading, but they feel that the learners do not have sufficient grounding in sight words to succeed in this activity (In press, p. 18). This results in the teacher resorting to using "the old methods" to build on her learners' reading competence. The conflict between what is perceived as requirements from policy documents, and personal approaches to teaching literacy practice, is illustrated in this article. Muthivhi's (In press) research helps us to appreciate how difficult it is to establish literacy when teaching in a mother tongue, and it raises the importance of finding alternative ways to address pedagogic methodology when teaching early childhood literacy.

Prinsloo's (2004) research into literacy practices in the Western Cape, exemplified some of the conflicts between school literacies and "out-of-school literacies", but also confirmed Oller's (2007) suggestion of using situated literacies to facilitate learning. Prinsloo (2004) demonstrated how early learners in Khwezi Park made use of "a mix of languages, narrative resources, images and artefacts from local popular culture (including traditional Xhosa and Christian church influences), from the mass media (TV and radio) and schooling", which suggested that they used a variety of resources and brought these out-of-school literacies to the school environment (2004, p. 294). Schools do not, however, acknowledge these out-of-school literacies and therefore do not build on existing knowledge. Muthivhi supports this view when he says "the acquisition of literacy competence can be viewed as a social practice, an activity system that is connected to, and afforded by the cultural tools that arise from and develop within the activity setting in which the specific events of reading and writing take place" (In press, p. 19).

[5] A "big book" is a large format book that is used for story-time. It usually contains big illustrations and only one or two sentences below.

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Play in the Khwezi-Park case study, facilitated language development and demonstrated the potential for learners to explore ways of learning in a social context (Prinsloo, 2004). Play in the Khwezi-Park case study was entirely child-directed, but involved more capable or influential learners leading the structure of chanting and skipping games. Learners displayed multilingual code-switching between their mother tongue, isiXhosa, Afrikaans and English. When English was used, it was usually to denote an explicit instruction or status term drawn from the media. Although children are taught the names of numbers and days of the week in Xhosa, at school they prefer to use the English terms, as do their parents (Mashiya, 2011& Bloch, Stein & Prinsloo 2001). The children draw from popular music (e.g. kwaito and Britney Spears) to play a word game outside. According to Prinsloo (2004), this enables them to develop phonemic awareness and shows potential for reading competencies. Consequently, the learners built "situated meanings" in play and learnt how to use them in a particular context (Prinsloo, 2004, p. 298). The Khwezi-Park case study revealed the potential learning that takes place within a social context and, as suggested by Oller (2007), the imperative for educators to draw from the child's socio-cultural background when teaching reading.

Bloch's (2006) work in South African schools in the 1990s, confirmed her suspicions that teachers were in desperate need of support in teaching in multilingual and multicultural contexts. There appeared to be a lack of understanding about the significance of mother-tongue learning and how to handle diversity in an appropriate and sensitive way. Mashiya's (2011) research into why teachers and learners do not use their mother tongue as the medium of instruction and in "in-school" communication, revealed that little has changed since the 1990s. Teachers were still struggling to reconcile the challenges of a multilingual and multicultural learning environment. Furthermore, parents view English as the language of economic empowerment and therefore do not always support mother-tongue instruction. The

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development of reading competency is further obstructed by teachers using a mixture of mother tongue and poor English as the medium of instruction in the classroom. Teachers argue that, because learners enter schools with a smattering of English around core information such as days of the week, number names and basic rhymes, but do not have a comparable knowledge in their mother tongue, it makes sense to use English as the medium of instruction (Mashiya 2011). Mashiya's (2011) research described teachers complaining that their home language is too time-consuming for Grade One learners to use because the words are cumbersome compared to the English equivalent. Mashiya's (2011) study also revealed that teachers bow to peer-pressure when it comes to using English as a medium of instruction, as they perceive that they are viewed as untrained or inadequate when they teach in their mother tongue. This adds to the degradation of indigenous African languages and feeds the confusion around early-literacy pedagogy in multilingual classrooms.

Mashiya's research (2011) also suggested that schools are not implementing the 'Language in Education Policy (LIEP, 1997) which advocates the promotion of mother tongue to assist previously disadvantaged communities. Alexander (2002) described a situation in which, while educators perceive English as the dominant language around which social upliftment revolves, they do not see the need to grow their mother tongue to a comparable level of dominance.

Jordaan's (2011) study of Grade One learners' acquisition of academic English describes a profound discrepancy between classes where the educator was a first-language teacher teaching largely first-language learners, and classes where the English Additional Language (EAL) teachers and learners engaged in code-switching while endeavouring to teach English. She argued that there is a tendency for teachers to over-estimate their proficiency in English, and that African languages are not sufficiently developed or standardized to enable home-language instruction (Jordaan, 2011).

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It can, therefore, be concluded that teaching and learning within a multicultural and multilingual schooling context is problematic and contributes to poor literacy performance evidenced in standardized tests of South African learners. Finding ways of assisting learners to marry their innate, cultural, out-of-school literacy competencies with formalized schooling contexts is important in facilitating the development of tools for learning, which will potentially improve learners' literacy skills, specifically those pertaining to reading.

3.4 A socio-cultural perspective

Scribner and Cole's (1981) ground-breaking study of the literacy practices of the Vai people of Liberia, found that literacy practices were linked to cultural practices. They defined literacy as "a set of socially organised practices which make use of a symbol system and a technology for producing and disseminating it" (1981, p. 236). They claimed that literacy is more than being able to read and write, as it encompasses the ability to apply those skills to specific situations, and the kind of literacy practices enacted by a particular culture determine the specific skills associated with literacy. Scribner and Cole (1981) argued that the Vai people made use of literacy in a way that was fundamentally different from that associated with formal schooling. The Vai people's typical literacy practices were centred around letter writing, diaries and record keeping, which required the acquisition of complex knowledge and skills.

Scribner and Cole set out to discover how literacy affects cognitive development and how social forces shape that development. Their research revealed that scholars need to situate cognitive skills in culturally organized practices, rather than make generalizations about the relationship between literacy and cognitive development. Bloch (2006) supported this viewpoint when she described literacy as a process in which children construct their own

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personal literacies in ways that are meaningful, culturally appropriate and developmentally apt.

Muthivhi (In press) stated that Scribner and Cole's research is relevant to the present South African situation, especially in schools where learners begin to read using their home language which has suffered neglect as a result of the apartheid schooling system and consequently is ill-equipped to perform the task of formal learning in schools.

Moore and Hart's (2007) study of the application of David Rose's Learning to Read: Reading to Learn (LRRL) scaffolded reading strategy on a Grade 11 learner, demonstrated how adopting a socio-cultural approach to the teaching of reading can facilitate the development of reading competencies. Phindi's progress through a Pietermaritzburg school was aided by a systematic and explicit teaching of reading skills on the part of a teacher who used scaffolded strategies to help Phindi to make sense of academic texts. Whilst this study described a one-on-one scaffolded teaching relationship, it is relevant because it confirms the difficulties that learners face when the foundation of literacy skills is lacking, and shows the benefits of a Vygotskian approach to pedagogic methods. In this case study, Phindi was pushed through her foundation-phase schooling even when she was not ready to progress. This strategy caught up with her when she entered high school and the sheer volume of reading material was beyond her capabilities. The use of the (LRRL) program helped her to develop skills to read "for meaning".

Working with Phindi, her teacher began by deconstructing a text. Sentences were paraphrased in terms that Phindi could understand; key words were identified and highlighted by the learner with the teacher elaborating on their meanings. New concepts were discussed and related to the learners' personal experiences. This was followed by a writing stage using the key words that had been written on the blackboard. The new text was jointly constructed with alternative words suggested by the teacher, referring to notes and collaborative

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discussion. In this way, Phindi developed the tools to understand academic texts which previously had been problematic. The steps to understanding the text had therefore been "scaffolded" making explicit the appropriate activities necessary for Phindi to master comprehension of an academic text.

Moore and Hart's (2007) research demonstrated that some contemporary approaches to teaching reading in South African schools can yield positive results. Their research suggested the importance of scaffolded learning.

While researching the efficacy of mediation on self-regulation of pre-schoolers, it became clear that a socio-cultural approach to teaching can yield positive results (Harrison, 2011). Twenty-five participants in a multicultural and multilingual South African preschool were "consciously mediated" by the researcher. Conscious mediation meant that the educator employed specific methods of mediation to achieve self-regulation in the areas of problem-solving, emotional competency and organizational skills. Conscious mediation on the part of the educator allowed learners to develop the language of self-regulation, achieve a deeper understanding of the fairy tale that was foregrounded, and perform independently and confidently in classroom activities. Harrison (2011) found that, through play and dramatization of a fairy tale, the second-language learners were especially responsive to this method of teaching and quickly grasped new rhymes and phrases that pertained to the theme.

Roskos and Christie (2011) posited that educators must continue to make time for play in the school timetable in order to facilitate emergent literacy. In Harrison (2011) it was found that by setting up a learning environment that facilitated collaborative learning within individual ZPDs, and providing opportunities to explore the meaning of a text, learners were motivated to internalize new knowledge. It is this approach to pedagogic practice that has potential to facilitate development of reading competency.

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Clay and Cazden's (1993) Reading Recovery (RR) programme demonstrated how a combination of phonic-centred and whole-language literacy approaches can facilitate the acquisition of essential reading skills. The RR programme which originated in New Zealand and was the brainchild of Marie Clay (1966), was intended to assist learners who were not acquiring basic reading skills. Clay (1998) asserted that readers have to monitor and integrate information from multiple sources to succeed in their quest to understand a text.

> …they engage in "reading work," deliberate efforts to solve new problems with familiar information and procedures. They are working with theories of the world and theories about written language, testing them and changing them as they engage in reading and writing activities. (Clay & Cazden, 1993, p. 207)

How children understand the texts they are reading determines the strategies they adopt. This may include sounding out a word or guessing from the context of a story. Plenty of praise is given with careful use of prompts when a child experiences difficulties. Children are tutored individually and their progress is monitored by means of an observation chart referred to as a "running record". This determines the level of instruction for the day's learning which begins with re-reading the previous day's book. Letters are identified within the context of a story, and the child then practices writing them. Sentences are cut up and reconstructed to facilitate understanding of how a sentence is composed and to help with word recognition. Finally, a new book is introduced and read collaboratively with the teacher. This process is repeated with adjustments made to meet the needs of individual learner's progress.

The success of the RR programme can be seen in its application in both America and the U.K., with specific emphasis on remedial teaching. Clay and Cazden's (1993) research demonstrated how using a combination of explicit reading tools and whole language approaches can facilitate early reading competency within a collaborative, scaffolded approach to teaching.

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Cox, Fang and Schmitt (1998) found that, by making explicit what is implicit in children's performance, we gain an objective understanding of the tasks, demands and problems that children have to face when we try to teach them to read effectively. Their research using Marie Clay's Reading Recovery (RR) specifically targeted for "at-risk" learners, and was based on the assumption that the child will learn by constructing meaningful reading and writing activities through their social interaction. The social interaction affords the child the opportunity to work at a level at which she may be "almost right" and, with the support of an adult, is able to collaboratively problem-solve and carry out a reading task.

The 27 "at-risk" participants, taken from four different suburban primary schools, were required to orally recount a story about a personal experience which was then used to facilitate reading. In this way the learners drew from their existing knowledge to construct their stories, which helped the learners to relate to their texts. The stories were written onto a laptop by an interviewer and the aim was to create a story that could be read by fellow learners. The authors of the stories would need to plan their task and problem solve in the process of creating their written texts. The purpose of using a laptop was to free the author from the restrictions of the mechanics of writing and was linked to the age group being studied. Cox *et al.*'s (1998) findings revealed that the entry and exit texts that were analysed showed a marked improvement in metacognitive utterances and planning processes. "Entry and exit texts" referred to texts produced at the beginning and at the end of the project. The authors concluded that, through exposure to extensive opportunities to read and talk about learners' stories with a more knowledgeable other, learners were helped to internalize fundamental features of storybook language.

The Vygotskian framework depends on the basic principle that children actively participate in constructing new knowledge within a social context (1978). Flint's (2010) Canadian study of paired reading within a Grade One classroom, consciously adopted a socio-

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cultural approach to teaching reading. Flint suggested that by pairing learners when reading they support one another through dialogue and collaboratively construct new meaning. She described how learners who are placed in ZPDs that are a mixture of similar ability groups, with one learner slightly more capable than the other, use three methods to scaffold their reading. By "scaffold" it is meant the breaking down of learning into steps that will facilitate the acquisition of new knowledge. In Flint's (2010) study these included the use of reading strategies and prior knowledge to guide each other's learning; making various connections with and to the texts to construct meaning, and using play as social interaction while reading. Learners were observed discussing books in a manner that related stories to their own personal experiences. Flint (2010) commented when observing one of her learners that: "She is making connections between the story and her real life in order to create a support for her understanding of the book as a whole and in doing so, creates a meaningful reading transaction" (p. 294). A group of three boys used "play" as a means of collaboratively reading a book about people choosing puppies from a pet shop. On each page, one of the three boys would choose a dog and anticipate if it was the one chosen by the author. This game kept the young readers engaged in the text and motivated to read.

Flint (2010) concluded that, all too often, reading lessons do not allow for play or for a social approach to reading, while the "buddy system" of paired reading creates a natural learning environment. This study demonstrates the benefits of a socio-cultural approach which allows for learning through play and collaborative support.

Ogden's (2000) U.K. study of collaborative tasks and analysis of reciprocity during peer interaction at Key Stage One, evidenced some interesting implications for literacy teaching methodologies. While she concluded that learners in the 3-4 age group were incapable of successful group work, her study showed that the 5-7 age group can successfully learn in a collaborative environment, but that educators must be more proactive in assisting learners to

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mediate new learning within their ZPD. She suggested forming "working partnerships" (2000, p. 223) which allow learners to become more familiar with one another and consequently be less hampered by the difficulties of understanding unfamiliar peers. Ogden (2000) strongly advocated a collaborative learning environment because it creates opportunities for meaning-making within a developmentally appropriate ZPD, and for consciously mediated teaching.

A Nigerian literacy programme described how adopting a collaborative-learning approach to teaching reading and writing enabled the development of reading competencies in second language learners. The programme is relevant to this thesis because it describes a socio-cultural approach that could facilitate teaching in a multicultural and multilingual classroom context. Ekpe and Egbe (2005) suggested that taking into account the social and cultural contexts of the learner creates a less threatening learning context and reduces the chances of "literacy shocks …. while enhancing a gradual transformation from the preliterate to literate stage and from reading to writing"(Ekpe & Egbe, 2005, p. 27). This literacy-learning project, entitled *The Vacation Reading Program* (VRP), took place during a school holiday and was facilitated by READ picture story packs. This is South African material from the Read, Educate and Develop Educational Trust of South Africa, provided as reading resources to Nigeria in 1999.

Picture stories were chosen because they presented opportunities for making connections between pictures and print; allowed for collaborative meaning-making; improved thinking skills such as sequencing, predicting and relating cause and effect, and were accessible to all age groups and language abilities. What emerged from this project was the ease with which learners were able to develop indigenous texts which allowed them to actively engage in their own learning. Ekpe and Egbe's (2005) VRP project saw learners construct books which were carefully illustrated, in many instances including songs,

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characters given indigenous names, and possible story lines developed. Learners were afforded the opportunity to create their own endings and were taken through a scaffolded programme of word games, sentence building, group discussions and, finally, the development of a completed storybook. Ekpe and Egbe concluded that "using what the student brings into the literacy learning experience not only enriches the whole community but also helps to reduce stress, foster belonging and enhances self-worth within the learning environment" (2005, p. 34).

A study done in KwaZulu-Natal which adopted a whole-language, collaborative-learning approach to teaching English, demonstrated that culturally appropriate teaching is possible within South African townships schools. Sithabile and Bonakele (2010) suggested that, in township and rural schools, the problem of poor literacy rates is more to do with the use of English as the language of learning and teaching (ELoLT) from Grade Four, although the relevant communities use indigenous languages at home. The Principal and staff acknowledged that learners were reluctant to volunteer information unless they were able to communicate in their mother-tongue. The use of code-switching as an initial solution to improving learner participation in the classroom was not entirely successful because learners could not express themselves in examinations or tests, owing to insufficient vocabulary. Although the community and school were aware of the disadvantages that ELoLT presented, they did not feel that they received any support from the curriculum or from the DoE to promote proficiency in English. Sithabile and Bonakele's (2010) study of Zungu Primary school is pertinent to this research because it describes a school adopting a pupil-facilitated approach to teaching reading, which successfully catered for the needs of learners' individual ZPDs.

Zungu Primary made use of an English-acceleration programme developed by a primary school in 1991. The St Mary's Interactive Learning Experience (SMILE) used pupil

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facilitators to assist groups of six learners to practice oral, reading, writing and listening skills. All the teachers in Zungu Primary were trained in SMILE, but only six educators actually ran the programme and trained the learners. Some of the pupil facilitators were sourced from the local high school as the learners, who themselves had been a product of SMILE, wished to "give back". This language programme was supported by the community, who were eager for their children to become proficient in English and, therefore, were prepared to purchase the obligatory workbook.

Sithabile and Bonakele (2010) posited that the use of older and more capable learners to teach younger learners was successful because there was a shared culture, and because the work was reinforced in the classroom by the teachers. "That way, the learners' first language is not lost in pursuit of a new language, instead, the school and classroom culture cultivates the development of additive bilingualism" (p. 103). This indicated that a socio-cultural approach to reading competencies is possible because it created an environment for learners to work collaboratively with the teacher. A symbiotic relationship between the teacher and the pupil-facilitators meant that all parties were supported in new learning. The teacher would prepare the facilitators for the next day's lessons, but also reinforced the previous day's lesson in general classroom work. Lastly, the pupil-facilitators were afforded the opportunity to consolidate their understanding of literacy learning through their interactions with the groups of six pupils. In this way the school and community actively provided their own support to both teachers and learners in a way that demonstrated the efficacy of Vygotsky's socially mediated learning within the ZPD.

Adopting a socio-cultural approach to teaching reading, using a learning wheel, prompted authentic class discussion in an American-based research project. Blum, Koskinen, Bhartiya and Hluboky (2010) found that using a poster-sized coloured wheel with key questions attached, encouraged learners to discuss class stories and make the connection

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between reading and meaning. Questions that were addressed were: tell me in your own words what happened in the book; talk about your favourite parts; this book reminds me of…; add something new to the book. The wording of these scaffolded prompts was carefully designed to facilitate discussion. Learners were exposed to each question in isolation before the poster wheel was introduced. The reason for this was to ensure that the learners understood the nature of the question. The teacher would model possible responses to each question to promote understanding. Once learners had mastered the combined class discussion around the poster wheel, they progressed to working in pairs with a mini-wheel. Parents were included in the use of the mini-wheel as a means to discuss literature at home. Assistance for parents was provided by the class teacher.

This four-year project evolved to include second-language learners and was additionally employed by teachers across a variety of subject domains. The teachers concluded that providing learners with a set of easily accessible questions from which contextual discussion could take place, modelling appropriate styles of answering the questions, and drawing from learners' existing knowledge base, ultimately allowed learners to read with meaning. Blum *et al.*'s (2010) research is material to this thesis because it illustrates an effective means of teaching reading that allows learners to develop a deeper understanding of a text through the use of mediated tools.

Chambers Cantrell's (1999) findings also demonstrated a marked improvement in reading when applying a socio-cultural approach, with significant differences in groups' reading performances, particularly around comprehension, fluency and written work. This study specifically instructed teachers to deviate from traditional forms of teaching and to adopt a Vygotskian approach in which teachers were encouraged to stress active child involvement, interaction and exploration and to work with students in multi-age or multi-ability groups. Furthermore, teachers were required to "move from an essentially skills-based

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instructional program, to an integrated curriculum that emphasized reading and writing" (Chambers Cantrell, 1999, p. 370). Eight teachers were chosen to participate. Four were known to be effective educators and four less so. Twenty-two Grade Four learners' work was analysed from an experimental group and 19 from a control group. Chambers Cantrell concluded:

> Effective literacy teaching seeks to make reading and writing instruction meaningful by engaging students in literacy events. Through a balanced approach to literacy instruction that focused on the needs of their students, these effective teachers provided the foundation for higher literacy learning. (1999, p. 378)

While the aforementioned studies dealt with learners in preschool, and Grades One and Four, and the research of this thesis focuses on Grade One, the teaching methodologies are relevant. A Vygotskian approach to teaching early-reading competencies has the potential to succeed in South African primary schools because it acknowledges the importance of learners' cultural diversity and promotes a learning environment that facilitates success, because it "seeks to make reading and writing instruction meaningful", as suggested by Chambers Cantrell (1999, p. 378). Chambers Cantrell's research is additionally valuable to this thesis because it confirmed the importance of developing skills that allow learners to "find meaning" in texts through a collaborative mediated interaction.

De Witt (2009) explained that, while it is commonly recognised that a good literacy programme would improve our standard of education, this would be effective only if implemented correctly. The fore-grounded question is: What are we doing to implement effective literacy programmes? One such programme is seen in the work of Donald, Condy and Forrester (2003). Donald *et al.* described a pilot study that ran for three years in seven primary schools, involving 79 teachers in Grades One to Three. They give an account of the lessons learnt from the Concentrated Language Encounter (CLE) project, and highlighted the

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value of the project in general. The approach adopted made use of Vygotskian notions of development pertaining to spoken, written and read language within a social context. Literacy lessons were specifically linked to community practices, such as the growing of vegetable gardens. The initial stimulus was a text or activity that was shared between teacher and class. The story behind the activity could be discussed by means of illustrations, or through the simple telling of a story. A starter book in the LoLT (usually English, Afrikaans or Xhosa) was read and discussed with the class. Important points were identified and learners were encouraged to engage with the story by predicting a sequence of events or possible outcomes. This method was similar to that seen in the Nigerian VRP programme, but where it differed was that a special effort was made to connect with second-language learners who could not relate to the primary text, by providing the same text in their home language. After extensive discussion and analysis of the story, learners were given large sheets of paper upon which they could work collaboratively to retell the story in their own words. The teacher worked as a conscious mediator, being available to edit and correct the language where necessary.

Donald *et al.*'s (2003) study was largely positive, but did show how schools with poor administration and management were unable to sustain the intervention of CLE. This suggests that problems in schools are not necessarily linked to poor pedagogy, but can also result from inappropriate management. Donald *et al.* (2003) noted that the motivation and commitment of teachers was a vital element in the success of an intervention and that researchers wishing to do this type of research should ideally involve the teachers in their decision making processes. Finally, Donald *et al.* (2003) concluded that being aware of an administrative overload on teachers is important, as teachers may perceive an intervention as an additional burden rather than a support. These points are all germane to this research project as they exemplify a successful Vygotskian intervention, but also provide guidelines

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for how the researcher must be sensitive to the needs of the teacher when they conduct research in any given school.

Adopting a socio-cultural approach to pedagogic practice, as discussed in the many examples above, has been shown to yield positive results. It provides both teachers and learners with tools for learning which are relevant to the contexts in which learners are engaged. It can begin to address some of the problems inherent in the failure to raise South African literacy rates because it has the potential to work with the individual needs of learners. The social nature of Vygotsky's theory for learning can be seen to promote learning through collaborative endeavours.

3.5 Summary

This literature review has described some current approaches to pedagogic practice when teaching reading, both in the South African context and abroad. The state of teaching and learning of reading has been seen to be problematic in some South African contexts, with teachers struggling to reconcile progressive policies with the realities of pedagogic practice. It has been suggested that this is because teachers lack core knowledge of how to teach reading and consequently have tended to over-emphasize phonics at the expense of comprehension. The pedagogic style that is favoured is grounded in a didactic approach with rote learning that does not encourage pupil interaction or discussion. This has resulted in learners failing to develop the skills to examine texts or to solve problems, thereby limiting their ability to acquire an understanding of complex academic texts.

Added to this mix are the challenges of the multilingual and multicultural classroom in which many learners receive tuition in a language other than their mother tongue and teachers' proficiency in that language may be problematic. The evolution of indigenous languages has meant that their translation into academic texts is not always feasible and the availability of culturally appropriate texts is limited. The latter two issues, while being

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addressed by South African authorities, will take time to resolve. This means that many learners coming from impoverished backgrounds, where availability of reading materials is limited, may encounter problems identifying with formal school texts and consequently will struggle to learn.

Attempts to address the issues pertaining to multilingual classrooms have revealed that establishing a solid foundation in mother-tongue has the potential to assist with introduction of a second language (usually English), but also that this needs to be carefully managed with appropriate resources, pedagogic methods and long-term support of teachers.

Adopting a socio-cultural approach to teaching reading has been shown to be effective both abroad and in South African schools. Recognizing learners' cultural background and allowing them to draw from existing knowledge, mediating within learners' individual ZPD's, and providing scaffolded teaching and learning, were all seen to assist learners to develop tools for learning. Furthermore, by allowing for collaborative construction of knowledge, the teacher and the learner were able to read for meaning, rather than simply engage in deconstructed units of information that prevented the learner from developing reading skills.

Jordaan (2011) stated that limited research has been conducted on the development of academic-language proficiency in South African learners, specifically at foundation-phase level. It is this gap that this thesis aims to fill by deepening our understanding of how children learn to read, how teachers teach and by suggesting a socio-cultural approach to pedagogic practice which has potential to meet some of the challenges of complex South African classroom contexts.

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4. Research Design

4.1 Methodology

Methodology refers to a "comprehensive group of methods that work together to deliver data and findings that reflect the research question and suit the research purpose" (Henning, 2007, p. 36). This research was conducted through the use of both quantitative and qualitative methods to gain relevant information, specifically making use of the concept of a case study. Babbie and Mouton (2010) described qualitative research as a generic approach in social research in which the departure point is that of the insider examining social action. This approach allows for emphasis of the respondents' experiences, it takes into account people's interpretation of events, it is manageable, and it focuses on processes rather than outcomes (Babbie & Mouton, 2010). It is, however, limited by its subjective nature which can be problematic when making generalizations. Babbie and Mouton (2010) considered qualitative research to be particularly appropriate when studying attitudes and behaviours best understood within their natural setting which, in this case, was Grade One classrooms in which learners were beginning to acquire basic reading skills.

Qualitative research has a number of features that are important to this research project namely:

- The primary aim is in-depth descriptions and understanding of actions and events.
- Understanding social action in terms of its specific context is more important than attempting to generalize to some theoretical population.
- The research process is often inductive in its approach, resulting in the generation of new hypotheses and theories.
- The qualitative researcher is seen as the "main instrument" in the research process.
- Ways to enhance objectivity, validity and reliability within studies in the interpretive paradigm include: triangulation, the writing of field notes and establishing

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trustworthiness between the researcher and the teachers as well as between the researcher and the learners. (Adapted from Babbie & Mouton, 2010, p. 309-310.)

Qualitative data collection was employed in three areas: teacher interviews, filmed observations of teachers giving lessons, and assessment of problem-solving as part of the learner literacy assessment.

Quantitative methods were also important components of data collection and analysis. These were employed when scoring interview data to illustrate how many teachers held a particular viewpoint, scoring frequency of use of pedagogical modes, and assessing learners' reading and comprehension skills prior to and after a period of learning. This was necessary to compare teachers' pedagogic styles[6] and to attempt a correlation of their use of 10 pedagogic modes with learner outcomes (Cohen, Manion & Morrison 2007).

4.2 Case study

The defining characteristic of a case study, is its emphasis on "an individual unit" (Babbie & Mouton, 2010, p. 281) which, in this instance, was Grade One classrooms situated in southern suburbs of Cape Town, South Africa.

A case study was chosen as the method for research because it is the ideal tool for examining real people involved in real-life situations, and for testing a particular social theory (Cohen *et al*. 2007). According to Yin (2009), a case study design should be considered when: (a) the focus of the study is to answer "how" and "why" questions; (b) one cannot manipulate the behaviour of those involved in the study; (c) one wants to examine contextual conditions because one believes that they are relevant to the phenomenon under study; or (d) the boundaries between phenomenon and context are not clear.

[6] A pedagogic style encompasses the totality of a particular teacher's approach to teaching whilst a pedagogic mode refers specifically to the 10 defined modes used in the coding schedule.

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The theory in this case revolves around Vygotsky's notion of how children learn within a ZPD and acquire early literacy competencies. The researcher observed teachers and learners in their schooling contexts. Each context was carefully examined to describe and determine the efficacy of pedagogic styles.

The case study allows for intensive investigation while examining multiple variables and permitting the unit of study to interact in a context of mediation (Babbie & Mouton, 2010). As this case study made use of multiple cases, each containing multiple units of analysis, it is what Yin referred to as a "multiple-embedded case study" (2009, p. 46). "A multiple or collective case study will allow the researcher to analyse within each setting and across settings." (Baxter & Jack, 2008, p. 7). Grade One classrooms are complex environments in which multiple relationships occur. The case study provides the researcher with an opportunity to observe a society in microcosm and to "allow for events and situations to speak for themselves" (Cohen *et al*., 2007, p. 254).

According to De Vos, Strydom, Fouche and Delport (2008), the exploration and description of a case study is achieved through detailed, in-depth data collection which should be drawn from multiple sources that are rich in context. These sources can include some of the following: observation, interviews, archival records and test sheets. For this research project, filmed observations, interviews with educators, research field notes and an application of pre and post tests for reading, comprehension and problem solving, were employed.

'Each data source is one piece of the "puzzle," with each piece contributing to the researcher's understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together to promote a greater understanding of the case' (Baxter & Jack, 2008, p. 11).

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4.3 Test procedures

Learners and teachers were observed over the period of the first term of 2013 to establish a working relationship with the schools concerned, and to determine a comprehensive lists of pedagogic modes. Teachers were then purposefully selected to obtain a sample which covered a variety of pedagogic techniques. Teachers were selected from schools that were representative of the relatively privileged middle-class and also the less privileged working-class socio-economic groups, to allow for comparative analysis.

At the beginning of the second term of 2013, the researcher filmed literacy lessons taught in Grade One to allow description and quantification of teachers' pedagogic styles. The first interviews of the teachers took place in the first term of 2013, to establish their thinking about how they approach the teaching of reading and to provide an understanding of their practice and their conceptual framework. A second interview took place at the end of the research period to allow for any additional teacher perceptions to be added to the original interview and to provide comparative data.

A baseline assessment was used at the beginning of the second term as it was felt that, at this point, the participants (namely Grade One learners) would be sufficiently capable of taking the test to determine the learners' current levels of literacy (see Research tools, Instrument 4, in Appendix, p. 292). The same baseline test was repeated at the end of the research period, at the end of the second term of 2013, to provide comparative data and triangulation. The term 'triangulation' refers to the need for a study to be considered credible through verification. In order for this to happen the study should be grounded in a clearly defined theoretical framework, literature review and systematic research methods (Atkin & Wallace, 2012).

The baseline assessment was measured against the requirements of the Curriculum and Assessment Policy Standards (CAPS; 2011) for Grade One to determine what areas of

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reading competency the pedagogic styles were favouring and where socio-cultural theory may be applicable. Areas that were assessed were the learners' ability to read a short story, write a basic sentence, comprehension of the story, level of vocabulary, and recognition of basic phonics. In addition, an informal level of problem-solving skill was assessed by means of observation of how the learners solved problems when trying to read the text and when trying to write their sentences.

The baseline assessment was sourced from an online reading site (www.superteacherworksheets.com) which is available to teachers working in foundation phase (see Research Instrument 4, Appendix, p. 300). This was not a normative test, but rather a vehicle to determine acquisition of early reading competency.

4.4 Observation

At the beginning of 2013, the researcher observed the learners and teachers during classroom reading activities and while engaged in the acquisition of early literacy competencies. Early observation permitted "information-orientated" sampling whereby teachers who displayed different levels of socio-cultural methods in their teaching, or alternative pedagogic techniques, were selected so that there was a range of approach within the sample (Flyvbjerg, 2006, p. 230). Flyvbjerg described information-orientated sampling as being useful to "maximize the utility of information from small samples…" (2006, p. 230). It additionally served to bring to the fore alternative identifiable pedagogic styles which may influence the acquisition of early reading competencies. During the course of the second term of 2013, the teachers were filmed three times for approximately 40 minutes each time, while teaching Grade One learners how to read. As far as possible, the lessons were spaced out over a period of several weeks to reduce the influence of temporary stresses on the part of the teachers or learners. The filming over the duration of the second term provided evidence of

pedagogic styles and triangulated the data taken from the teacher interviews and baseline tests. According to McMillan and Schumacher (2001), it is important when using observation as a method of research to define in precise terms what will be observed. This research is grounded in socio-cultural theory, and the points that the researcher identified are covered in the conceptual framework (see pages 25-67).

Filming the teachers and their interaction with their learners, is an important means of recording pedagogic practice as it provides an accurate record of events that took place and can be carefully reviewed at the point of analysing data (Foster, 1996). This type of observation was described by Kerlinger (1984) as "event sampling" and involves the observation of classroom interactions between teacher and learners. It also allows for natural life-like situations and continuity of behaviour. Kerlinger considered observation to be potentially problematic because "when an interpretative burden is put on the observer, validity may suffer" owing to individual observer bias (Kerlinger, 1984, p.488). He did, however, feel that much of this can be overcome when the variables being measured by the observer are sufficiently embedded in theoretical groundwork. This is indeed the case for this thesis which aims to deepen an understanding of Vygotskian theory in foundation-phase through an analysis of pedagogic practices.

4.5 Interviews

Babbie & Mouton (2010) described a number of different types of interview, namely "basic, depth and focus group". This research project made use of the "basic method" which is an open interview allowing subjects to speak for themselves (Cohen *et al.,* 2007). "We need to recognize that the interview is a shared, negotiated and dynamic social moment." (Cohen *et al.,* 2007, p. 291). These interviews fell into the "less formal" category because the researcher wished to gauge the teachers' opinions of their current methods of teaching literacy

so that this could be compared to what they did in practice. Was there evidence of a conflict between what teachers perceive as effective pedagogy and what they were actually doing in the classroom? This less formal approach to interviewing may mean rephrasing a question to obtain a clearer understanding of an answer (Cohen *et al.,* 2007). Cohen *et al*., (2007) cautioned the researcher to take cognizance of the power the interviewer holds when conducting an interview. This could entail the interviewer's ability to influence interviewees, make them feel uncomfortable, judged or even feel unable to trust the process. They recommended a number of points to facilitate an effective interview. These were:

- establish trust
- maintain a level of informality
- pitch questions correctly
- watch non-verbal cues
- avoid being seen as an authority
- allow the participant to take some time in answering a question
- know your participants in order to conduct the interview appropriately
- be sensitive and empathic, employing active listening. (Adapted from Cohen *et al*. 2007, p. 367.)

These points were noted and every attempt was made to achieve them. Interviews of the teachers took place in the individual teacher's classrooms at the end of a regular school day. The interviews were conducted at the beginning of the research period (namely during the first term of 2013) and then again at the end of the second term (a school term is approximately 12 weeks). The second interview gave the teachers an opportunity to modify their responses and for the researcher to verify the qualitative data collected from the first interview. Furthermore, the second interview posed two new questions aimed at assessing the teachers' perceptions of the research process. The second interview enabled the researcher to

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refine the results of the first, and to gain insight into the research process and its possible influence on results.

4.6 Transcripts of interviews

Transcripts of all interviews and a sample of observed literacy lessons, were taken from films of teachers before and after the research period to describe the different pedagogical styles. Selected transcripts were used to illustrate the manner in which various pedagogic modes were used. These were used to support the findings and discussion chapters when evaluating particular approaches to literacy instruction.

The benefit of a transcript is that it is readable by anyone wishing to explore this research project and does not require the technology to view a film. The transcripts can also be used for additional research. According to Cohen *et al*. (2007), there are disadvantages to using transcripts in that they are decontextualized, somewhat abstracted from the time in which they were recorded and from the live situation in which they occurred. Cohen *et al*. referred to them as being "frozen" (2007, p. 367). They do not argue against using transcripts, but rather suggest a number of possible additions that should be noted when writing up the transcriptions. These involve noting:

- the tone of the speaker
- the inflection in a voice
- pauses or silences
- interruptions
- the mood of the speaker
- any indecipherable speech. (Adapted from Cohen *et al.,* 2007, p. 368.)

Cohen *et al.* (2007) also recommended filming as this allows the researcher to refer back to subtleties of expression and body language. For the purposes of this thesis, all lesson and

interview transcripts were used and the benefit of film footage was applied to minimize the abovementioned problems.

4.7 Field notes

The researcher used field notes, when conducting the interviews with the teachers and when observing their lessons. Although both of these data collection contexts were filmed, field notes provided additional information and were useful in the event of technological problems (Atkins & Wallace, 2012).

Field notes taken during the observation of the learners when engaged in the reading and comprehension tests 1 and 2 allowed for the recording of problem solving skills.

4.8 Participants

Hoadley (2005) suggested that teachers' and learners' socio-cultural backgrounds influence how teachers teach and children learn. It made sense, therefore, to investigate a range of teaching and learning contexts in South Africa. The purpose behind this choice was to describe pedagogic styles across a variety of contexts with a view to understanding the cross-cultural potential of a socio-cultural approach to literacy training.

This case study took place in five schools in Cape Town, South Africa. Participating schools were drawn from different suburbs to avoid biases toward any specific demographic sub-population. A socio-economic profile of each school was determined by ascertaining the average annual fees paid by pupils at participating schools during the year of research, that is, 2013.

At all selected schools, only Grade One classes were included in the study, and a stratified sample of nine learners from each of the classes was selected with the help of the respective teachers, and this sample was tested to assess the learners' literacy competencies.

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The total sample included five schools, 14 classes and teachers, and 126 learners (Table 1, p. 130).

4.9 Data recording and analysis

The analysis of data was informed by the researcher's understanding of Vygotskian theory, but was simultaneously grounded in interpretation of what was actually observed during school and classroom visits.

According to Yin (2009), multiple case studies frequently make use of both qualitative and quantitative data. McMillan and Schumacher (2001, p. 541) referred to the use of qualitative and quantitative data as "mixed methods" but made a distinction between three types of mixed method, namely Complementary, Developmental and Expansion. For the purposes of this research project, Complementary mixed methods were employed. By this it is meant that the purpose was to "elaborate, enhance, illustrate and clarify the results of one method with that of another method" (McMillan & Schumacher, 2001, p. 542). Yin (2009) suggested that one of the strengths of case-study research is that it makes use of a variety of data collection methods. He cautioned that this does mean that the researcher will have to master these techniques. Making use of both qualitative and quantitative approaches allows the researcher to evaluate questions and situations more comprehensively and insightfully (McMillan & Schumacher, 2001).

The researcher looked for the following six Vygotskian approaches to teaching literacy in order to describe pedagogic styles:

1. *Co-construction,* as suggested by Michael Cole (Newman, Griffin, & Cole, 1989), whereby the teacher is actively involved in helping children to develop their conceptual understanding through questions, probes and actions. In this way the teacher can establish what children understand, but the teacher appreciates that "the

child does not have a full understanding of the goal or final performance until she has appropriated the concept" (Bodrova & Leong 2007, p. 48). Does the teacher make use of class discussion to build a collaborative understanding of a new concept? Does the teacher base the new concept upon learners' existing knowledge? What types of questions does the teacher ask to determine what the learners already know? Does the teacher illustrate the collaborative knowledge in a concrete format, such as writing on the board, using a chart, smart board or flash cards?

2. Providing opportunities for learners to *practice new concepts* in order for them to move from simply repeating the dialogue of a concept without truly grasping it, to a deep understanding. What types of opportunities are provided for learners to practice a new concept? How varied are the opportunities for practice? To what extent does the teacher assess what has been practised to ascertain if the learner is effectively internalizing new concepts? How much support is given to those learners who are challenged by a new concept? What does the support look like?
3. *Recognition of children's ZPDs*. The difference between assisted and unassisted performance defines the ZPD (Vygotsky, 1978). To determine the learners' ZPDs, the teacher first establishes what learners already know and then sets the task at a level that is achievable with assistance. Does the teacher use questions, for example to ascertain the learner' level of ZPD. What kinds of questions? Are they open, closed, leading, rhetorical, etc.? Does the teacher break down the task into discreet units that are manageable by the learner. Are the tasks adjusted for different ability groups in the classroom, but set at a level that is obtainable with guided assistance?
4. *Scaffolding*. Does the teacher set a task that is challenging but possible with the support of the "expert", and is this support gradually withdrawn as the learners gain confidence in their understanding (Wood, Bruner & Ross, 1976)? Does the teacher

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vary how she employs scaffolding, ranging from taking most of the responsibility to simply guiding the learners as they express what has been learnt?

5. *Mediating learning:* In line with Vygotsky's theory that language is key to how we shape our thinking, the teacher operates as a mediator who assists learners to problem solve when decoding bodies of knowledge applicable to early childhood literacy competencies, and makes use of language for goal setting and planning learners' tasks. In this way, the teacher has a long term effect on learners' minds by "promoting the transformation of lower mental functions into higher mental functions" (Bodrova & Leong 2007, p. 52). Does the teacher define new scientific concepts, providing the learners with the language to understand what is being taught? Through class discussion, does the teacher elaborate on new knowledge? Does the teacher make use of formative evaluation to determine what "gaps" need to be filled?
6. *Cultural tools:* Does the teacher make use of culturally appropriate tools to promote the development of reading competency. What do these tools look like? Do they include stories that are appropriate to the classroom demographic, alphabet charts, flash cards, the children's own writing or basal readers, etc.?

An additional four pedagogic modes were added as a result of the pilot research and observation. These included:

7. *Rote learning:* The teacher employ methods of verbal repetition that are designed to assist the learner in memorizing information. Comprehension of what is being "drilled" is not necessarily part of this style of pedagogy (Muthivhi & Broom, 2009).
8. *Didactic teaching:* The teacher is perceived as an authority figure who transmits knowledge through a monologue on a particular topic. Limited or no questioning of learners takes place during this style of pedagogy.

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9. *Worksheet based:* The teacher makes use of worksheets as the primary resource for practicing a new concept. Learners have limited opportunity to write full sentences and generally use the worksheet to practice skills such as cutting, pasting and colouring in.
10. *Ability Group:* The teacher divides learners into reading groups according to their perceived aptitudes and a particular level of basal reader is provided. Each learner is given the opportunity to read a sentence from the reader or to identify a word from flash cards that the teacher shows to the learner.

The following is an illustration of one of the 10 pedagogic modes, namely ZPD, and is only part of the coding schedule that arose from an iterative interaction from the aforementioned high-level concepts and the data to hand. Each of the 10 identified modes were divided up into 18 empirical indicators which were measured by means of frequency on a Lickert scale (see Figure 1 below, and Appendix, p. 282-290 for full coding schedule).

Concept	Definition	Empirical possibilities	Examples	Presence of technique
ZPD	The difference between assisted and unassisted performance	**Questions**: *Knowledge based* 1 – closed- what the learner already knows. *Knowledge based 2* – partially closed with small room for dispute. *Guiding questions* - probing, leading, open. *Rhetorical questions* – No response expected from the learner.	Teacher: What sound does "A" make? Teacher: Have you done that book before? Teacher: Would we start our sentence on the left or right hand side? Teacher: Are you reading your book now?	**0** = technique not used; **1** = technique present once **2** = technique used twice **3** = technique used for than three times
		Responses: What the learner knows. What the learner doesn't know. What questions the learner asks to show what they do/don't know.	Learner: I can blend the sounds of the letters to read the word. Learner: Can you make a rhyme with the words ending in "at"? Learner: What sound does "th" make?	**0** = technique not used; **1** = technique present once. **2** = technique used twice **3** = technique used more than three times.
		Assessment: *Dynamic assessment* – how the teacher adjusts their teaching to assess what the learner knows with guidance. The teacher notes what assistance is most effective.	Teacher: Children, please show me where the beginning, middle and end of each word is. Place your finger at the beginning; now on the middle letter and finally on the last letter. A weekly spelling test based on a list of words covered in class or	**0** = technique not used; **1** = technique present once **2** = technique used twice **3** = technique used more than three times.

		Formal assessment-assessing what the learner already knows. *Informal assessment*- assessing whilst teaching, usually through probing questions/class discussion.	for homework. Teacher: As the register is being called, each learner must give me a word beginning with 'B'.	
		Mediation: *Definition* of *scientific concepts* - concepts such as our alphabet system/ writing system which are defined and given a relevant label. *Explanation of scientific learning* - an aspect of our alphabet system is explained and elaborated on to amplify learning. *Concrete consolidation* - the teacher makes use of concrete objects such as games/flash cards/charts etc. to help the learner grasp a new concept. *Language of mediation (academic)* - the teacher uses specific words/phrases/actions to elaborate on new concept.	The teacher introduces "vowels" to the learners. The teacher would use examples of vowels in three letter words and demonstrate how they change the word. She may write the vowels on the board. The learner practices using vowels in constructing three letter words using magnetic letters. The teacher makes use of a song to teach the learners a means of memorizing the five vowels.	**0** = technique not used; **1** = technique present once. **2** = technique used twice. **3** = technique used more than three times.
		Developmentally appropriate: *Types of activities assisted/unassisted* - The teacher plans and implements a number of activities within a lesson period some of which she mediates and others where the learner must work independently. *Task Orientation 1 (goal setting)* - The teacher sets a goal for the learners in order to set the level for the ZPD. *Task Orientation 2 (regulation)* - the teacher monitors the learners progress by scaffolding learning. *Response to support* - The learner accepts or rejects the scaffolding given by the teacher to the learner.	Learners work in groups to construct 3 sentences from a story that the teacher has read. A class goal is discussed and set at the beginning of the lesson. Individual goals are set with the teacher when she works with groups on the mat. Learners work one-on-one with the teacher to read their new book. The teacher assists learners to identify new vocabulary by looking at the initial sounds and the illustrations. Learners are able to build three letter words using a vowel.	**0** = technique not used; **1** = technique present **2** = technique used extensively.

Figure 1: Portion of the coding schedule. (For full schedule see Appendix, p. 282-290.)

This mixed-methods case study made use of:

- quantitative score data from pre and post learner tests in reading, comprehension and problem-solving,
- quantitative data from a coding schedule designed to analyse the teaching modes used by the teachers,
- and qualitative data taken from transcripts of teacher interviews and field notes from observed lessons.

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Scoring was used to (1) describe the extent to which various pedagogical techniques were used in the teaching styles of individual teachers, and (2) measure changes in their learners' literacy competencies. The two sets of quantitative data were cross-correlated to measure the efficacy of the pedagogical techniques used, with the predominant pedagogic modes evidenced from the coding schedule and then reflected against the qualitative data from the teacher interviews. In addition to the quantitative data, qualitative data were captured in the form of filmed recordings of interviews and lessons, as well as extensive notes taken during interviews and observations.

The aforementioned quantitative data required appropriate descriptive statistical analysis[7].

The researcher was trying to determine whether or not there is a difference between the average values of the reading and comprehension tests 1 and 2, per teacher. Since the scores for the tests were not normally distributed, the researcher had to use the median values as representative of the average. Ordinarily, a paired t-test would be done; however, since the same students wrote both tests 1 and tests 2 resulting in skewed distributions, a non-parametric version of the paired t-test was applied. This was the Wilcoxon signed rank test.

For the purposes of analysis of the problem-solving aspect of tests 1 and 2, McNemar's test was applied. In this test, the variables together cannot contain more than two different classification values. In this case, the classifications were a simple "yes" or "no".

In order to determine if entry level was a contributing factor in learner results, the absolute differences between the results of tests 1 and 2, per learner, were correlated with their results in test 1. The results of the correlation test were used to describe the effect of entry-level literacy on subsequent improvement in literacy skills.

[7] A data analysis technique that limits generalizations or conclusions, based on statistical analysis, to the particular group being studied (Picciano, 2004).

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The analysis of the frequency of use of a particular pedagogic mode by a particular teacher was a simple addition of the Lickert scale codes assigned to the teacher when examining film footage of the teachers engaged in literacy lessons. The scores were tabulated to provide a clear indication of the frequency of use of each pedagogic modes for each teacher.

The coding schedule results were related to learner test results by means of a Principle Component Analysis (PCA) which makes use of a dimension-reduction technique. By this it is meant that as much variability as possible is explained by using fewer variables. Instead of using original variables, a certain number of principal components (which are like weighted averages of the original variables) were used. The number of components were chosen to explain most of the variation observed in the original data.

The qualitative analysis of the teacher interviews were thematically analysed to identify common themes and the number of teachers who agreed or disagreed with a particular view point. This allowed the researcher to get a sense of the general view points that were held by the teachers. Furthermore, the coding schedule, which derived its quantitative analysis from the use of a Lickert scale grounded in frequency, allowed the researcher to analyse discrepancies between practice and expressed points of view.

Filmed interviews were conducted with the teachers both before and after the observations had taken place to gauge how they perceive their teaching styles and techniques. The interviews served the purpose of determining how the teachers' perceptions of how they teach correlated with the realities of what was observed in the classroom. The interview data was captured using Research Instruments 1 and 2 (see appendixes, p. 281 & 313).

Teachers and learners were filmed and observed in their classroom settings whilst engaged in lessons specific to literacy skills. A coding schedule (see Appendix for full schedule, p. 282-290) was designed and adapted after the first term of observation in order to

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allow for inclusion of pedagogic modes that were not part of a Vygotskian framework. The coding schedule for observation served to describe, in depth, the pedagogical techniques used during lessons. The coding schedule employed a Likert[8] scale: zero, technique not used; one, technique used once only; two, technique used two to three times; three, technique used more than three times. The coding schedule defined the elements of each pedagogical technique so that scoring would be consistent and objective. In the case of the six defined socio-cultural pedagogical techniques, the elements were those that, according to socio-cultural theory, are held to be essential for successful teaching and learning. Additional techniques were those that were frequently observed and therefore deemed to be relevant. These additional techniques included the strategies of rote teaching, didactic teaching, ability-group teaching and worksheet-based teaching. All pedagogic modes were defined in the coding schedule by listing indicators to facilitate scoring of each of the techniques. The scores provided evidence of what socio-cultural pedagogical techniques, as well as what other techniques, were employed during each lesson, and to what degree.

To control for other common influential factors, such as average age, class size and home language, data was gathered on these factors and tabulated to find possible significant correlations with the results obtained in scoring teachers and learners.

A stratified sample of nine learners per class was taken from each of the 14 participating Grade One classes, and the baseline test (Research Instrument 4, in Appendix, p. 300) was applied to determine their acquisition of reading competencies, comprehension of the text and problem solving skills. The test was applied to the same nine learners per class before and after the period of observation (i.e., the second school term of 2013). Stratification of each class sample of learners was based on existing CAPS (2011) assessments provided by the

[8] The Likert scale is used in surveys and questionnaires to simplify responses by providing from three to seven options in a consistent format.

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class teachers and traditionally applied at the beginning of the school year. Analysis of the first and second tests, per learner, described shifts in learners' cognitive development in relation to literacy.

4.10 Limitations of the methods

Many schools feel threatened by the prospect of a researcher entering their premises and recording the daily happenings, which made it challenging to obtain schools in which to work. Difficulties attached to obtaining schools in which to conduct research, together with safety issues linked to working in townships, resulted in the researcher gaining access to only five schools. The research project therefore had limitations that pertained to scale which prevented the researcher from making broad generalizations and extrapolations. Making use of only five schools, 14 teachers and 126 learners across a variety of teaching and learning contexts provided the beginnings of an understanding of how teachers teach in foundation phase and how children learn. This type of analysis on a broader scale would be beneficial to the knowledge base of how best to mediate learning in South African foundation-phase classrooms.

Departmental limitations around when a researcher may enter a school together with the constraints placed on the researcher by the schools themselves (e.g., no visits on Fridays, or in the first week of term or last week of term) made it problematic to organize sufficient contact time. One school in particular (School 2) was a casualty of this and only had five weeks between the first set of tests and the second, as opposed to the six weeks that the other schools were able to arrange. This could have affected results for this school.

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4.11 Ethical considerations

The ethical considerations pertaining to this study required the researcher to obtain permission from the principal of the schools concerned, the teachers, parents of learners and the Western Cape Education Department (WCED) to conduct this research. Respondents were informed that the researcher was to conduct research in their classrooms and that they were participants. Consent was obtained from the parents of the learners who were observed in the classroom and the nature of the research was explained.

Teachers were made fully aware of the nature of the research and the purpose of their interviews. Cohen *et al.* (2007) described three main areas around ethical issues pertaining to interviews, namely informed consent, confidentiality and the consequences of the interviews. Permission was asked of the teachers themselves and the learners in the Grade One classrooms. Confidentiality was maintained throughout and no names were used in the resulting thesis. Each school was assigned a number of one to five and each teacher was assigned a set of initials to ensure confidentiality. Teachers were given the option of obtaining a copy of any lessons that had been filmed. Should any film footage be used in any presentations arising from this project, consent will be obtained and faces and identifiable logos will be blurred. Findings arising from this study were made known to the participants. At all times, respect for all parties involved was maintained, with a particular emphasis on building positive relations between the researcher and the schools and teachers involved.

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5. Findings

This study explores children's learning and development, specifically in regard to the acquisition of early reading competencies. It makes use of Cultural Historical Activity Theory (CHAT) to examine pedagogic approaches to teaching reading in South African Grade One classrooms. This research describes the practices of teachers in different contexts of schooling to understand the diverse ways in which the historical practices of culture in schooling are enacted and what the developmental consequences of this may be on learner acquisition and development of reading skills.

In this chapter, quantitative data generated from the learner tests (see Research Instrument 4 in Appendix, p. 300) and coding schedules (see Research Instrument 5 in Appendix, p. 282-290), together with qualitative data on pedagogic modes derived from interviews with teachers are examined. Data taken from the two sets of teacher interviews is recounted in order to determine any discrimination between what teachers say and what was observed. A cross correlation between these sets of data is then presented. Individual teachers are highlighted to illustrate specific points in the findings.

5.1 Demographic

This research project included 14 Grade One educators and 126 learners across a range of socio-economic contexts. The demographic included five different multi-racial co-ed schools (Table 1, p. 130). School 3, although co-ed, has a policy of splitting the sexes so that two Grade One teachers taught only boys and two teachers taught only girls. This was then swopped around the following year. The thinking behind this, according to the Principal of School 3, was to see if the boys would perform better as it was felt that they tended to be over-shadowed by girls when the sexes were mixed.

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School 4 is a private school and well-resourced, with parents paying [9]R36 661 per annum. A full-time remedial teacher is available, but parents frequently make use of private specialists when a problem arises. Class numbers are kept low with 16 to 25 learners per Grade One teacher; however, none of the Grade One teachers have a classroom assistant.

All schools fell into Quantile 5[10], meaning that some school fee is charged, but how much varies according to historically generated type of school. Schools 1and 5 had a history as Model C schools whereas Schools 2, 3 and 4 were formerly for the "coloured" race group. During the apartheid era there were different government education departments serving different racial groups and governing different schools for "White", "Coloured", "Indian" and "Black" or "Bantu" citizens. White children's schools, known as Model C Schools (Statistics South Africa, 2011), were subsequently made non-racial and are now known as "former Model C schools", but they generally retain a relatively high standard of resources and place a higher fee expectation on the parents. This potentially allows for smaller class numbers and relatively good facilities and resources available to teachers. Although they are all fee-paying schools in Quantile 5, the schools that comprise this research project are a mixture of relatively privileged former Model C schools and schools that were previously for the "Coloured" race group and are relatively under-privileged (Table1, p. 130).

School 4 is a privileged school with small class numbers of between 23 to 25 learners and plenty of space for the teacher to set up learning areas. Although this school did not make use of smart boards, this was a choice rather than a lack of means to do so. The learners come from privileged homes in which they receive plenty of stimulation, enjoy extra lessons

[9] R36 661 = 3407.64 USD

[10] Schools in South Africa are organized according to Quantiles that are based on what, if any, fees are paid. Quantile 5 means that fees are paid, but the range can be from a couple of hundred to several thousands of rand per year.

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and, when remediation is required, parents can afford specialist fees. The average school day included activities such as computer lessons, library time and music and movement.

School 1 is a former Model C school and serves a middle to upper class demographic. It is well resourced and all three Grade One teachers have smart-boards in their classrooms. Class numbers averaged 25 learners per Grade One teacher. A full-time remedial teacher, in addition to four volunteer parents, made up the support structure for learners needing extra lessons. Like School 4, School 1 included computer lessons, music and movement and special library time in their average school week.

School 5 is a former Model C school which serves a less privileged demographic and averaged 32 learners per Grade One teacher. All essential facilities are available, including one smart-board in Grade One shared between three classes. A part-time teacher assistant assists teachers once a week during class time. She is shared by all three Grade One teachers and any additional support such as occupational therapy, is external and referred to government facilities such as Red Cross Children's Hospital. Some parents are able to pay for private specialist support.

School 2 is the least privileged of the five schools with prefab school buildings, no smart-boards and class numbers of up to 37 per Grade One teacher. There is no class assistant, except when student teachers come for their practical training, and they are not officially allowed to act as assistants. Parents struggle to pay fees and supply their children with school necessities such as school uniforms, stationary and school lunches. Remediation is problematic in that there are neither systems in place nor support from parents. Children are placed on a waiting list at Red Cross Children's hospital and it can take up to six months before an assessment is done. The learner demographic includes children from the Cape Flats, informal settlements and refugees from elsewhere in Africa.

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School 3 is also under-privileged, but is slightly better resourced than School 2 in that all four Grade One teachers have smart-boards in their classrooms. The school structure is a prefab and there is no school hall. They do have a library, but it is not used. Class numbers averaged 32-35 learners per Grade One teacher. They have a part-time remedial teacher with a dedicated room available for individual sessions. The school policy is to remediate learners who are repeating Grade One, and this does not include any learner in Grade R. This policy is a source of frustration for the Grade One teachers who feel that many of the problems could be resolved in Grade R.

Table 1: *Research demographics.*

School and teachers	School type	Teacher qualifications	School fees per annum	Average class numbers	Teachers (n)*	Learners (n)*
1 (Ms D.J., Mrs M., Mrs G.)	Former Model C	1 BEd Honours, Unisa[11] 1 BEd, Unisa 1 BEd, CPUT[12]	R11 880	25	3	27
2 (Mrs F.K., Mrs J., Ms B.)	Under-privileged	2 BEd, Unisa 1 BEd Honours, CPUT	R1850	37	3	27
3 (Mrs F., Mrs V.R., Mrs P., Mrs K.)	Under-privileged	3 Diplomas, UWC[13] 1 BEd, Unisa	R810	35	4	36
4 (Mrs A)	Privileged, private	1 BEd Honours, CPUT	R36 661	23	1	9
5 (Mrs R., Ms S., Mrs H.)	Former Model C	1 BEd, CPUT 1 Diploma, Mowbray Training College 1 BEd, Unisa	R6850	31	3	27
Totals	**5**	**10 degrees, 4 diplomas**	**-**	**-**	**14**	**126**

*Each teacher had nine learners that were tested.

The teachers included five young teachers (36%) who were either in their first or third year of teaching; eight middle-aged teachers who had well established teaching careers of

[11] UNISA – University of South Africa (part-time study through correspondence)

[12] CPUT – Cape Peninsula University of Technology

[13] UWC – University of Western Cape

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more than ten years, and one teacher who had taught for over 37 years and had taught both Afrikaans and English medium classes. This particular teacher achieved the most significant result in her learners' reading tests. Six teachers (43%) were White and eight (57%) were "Coloured" (as opposed to Black or African). Nine of the teachers (64%) had Afrikaans as their home language and five were English speakers. Ten of the teachers (71%) had degrees, three (21%) at Honours level, and four (29%) had teaching diplomas (Table 1, p. 130). The difference between a diploma and a degree is traditionally centred around the number of years of study. In the South African context, a diploma is usually three years of study with a strong practical emphasis whilst a degree is four years of study and may have a more theoretical base.

All five schools are registered as English medium schools. Schools 2 and 3 had previously been Afrikaans medium and many of the teachers still spoke to the learners in Afrikaans or a mixture of Afrikaans and English. Among the learner demographic of 126 participants, across all five schools, there was a total of 76 learners (60%) for whom English was a second or possibly third language, including some foreigners from countries such as Zimbabwe, Somalia, Democratic Republic of Congo (DRC), Rwanda and Ghana (Table 2, below). In addition School 2 has the highest percentage of second language learners in the research demographic. The seven French-speaking learners were frequently among the top readers in the first reading test and appeared to start Grade One able to read fluently.

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Table 2: *Home languages of learners.*

School	English	Afrikaans	Xhosa	Shona	French	Total no. of second language learners
1	11	14	1	0	1	16 (59%)
2	4	12	9	0	2	23 (85%)
3	15	14	2	2	3	21 (58%)
4	6	1	1	0	1	3 (33%)
5	17	4	5	0	1	10 (37%)
Totals	53	45	18	2	8	73 (58%)

5.2 Learner test data

5.2.1 Reading test results

In consultation with the 14 class teachers, a stratified sample of learners was selected for testing. Nine learners per teacher, were carefully chosen from top, middle and bottom ability groups (three per level) so as to provide a spread of abilities. Each learner was tested twice during the research period. The first test took place near the beginning of the second term (April 2013), and the second near the end of the same term (June 2013). The lapse of time between the first and second tests was, as far as possible, kept the same from school to school, such that four of the five schools had the second test roughly six weeks after the first. However, there were constraints originating from the schools with regard to the scheduling of tests, and these resulted in School 2 having only a little under five weeks between tests. Despite this however, they were ranked in third place for learner reading results and fourth for comprehension results (Table 6, p. 146; Table 9, p. 157).

In the period between tests, learners received roughly three lessons per day dedicated specifically to [14]literacy. This means that most learners would have received roughly 90 literacy-related lessons in the period between the first and second tests. In all 14 classes, virtually all of these lessons were taught by a single class teacher. Exceptions were a few

[14] Literacy lessons varied from 15 to 35 minutes in duration.

individual learners who were considered to be having difficulties and were given some separate and/or extra lessons, either by teacher assistants or by the class teacher.

A basic reading test[15], comprising a passage of 94 words, was applied to the learners individually. The learner read the text aloud to the researcher; when a learner was unable to read a particular word, it was underlined and one point was subtracted from the maximum score of 94. Learners were afforded the opportunity to try to decode a word, and if they succeeded in doing so, the word was marked as correct. The same reading text was used in the second test to facilitate comparability of the datasets. Teachers were not given a copy of the reading test and could not, therefore, prepare their learners for either test.

There was some indication that the reading test may have been too easy for some of the top learners because they achieved maximum or near maximum marks in the first test and did not exhibit any measurable improvement in the second test (Figures 1, p. 134 & 4, p. 140.). In the top ability group, across the five schools (42 learners), six learners did not display a shift between the two tests as they were already reading fluently in the first test. Three of the learners' home language was French, were spread across Schools 2, 3 and 5, and arrived in Grade One already able to read fluently. When asked who had taught them to read, the usual response was that an older brother, sister or mother had taught them in the year prior to Grade One. This suggests an intention, possibly linked to a cultural norm, to teach children to read before the beginning of formal schooling. The remaining three learners who were able to read fluently, were English first-language learners who came from homes where the parents were supportive; for example, they regularly supervised homework and read to their child.

In Figure 1 (p. 134), the raw learner data for Mrs A. from School 4 are shown. The learners are graded from top to bottom with learner #1 being in the top and learner #9 being from the bottom ability group. Learner #1 is an example of a learner who did not show an

[15] See Appendix for copy of test, Research Instrument 4, p. 300.

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improvement from test 1 to test 2. Otherwise, there were consistent improvements between tests 1 and 2. Furthermore, with the exception of learners #7 and #8, the scores for test 1 were fairly high. This could be attributed to the fact that School 4, which was a privileged school in which many of the learners came from homes where parents provided regular bedtime stories and stimulating outings, had learners who acquired basic literacy skills before starting Grade One and also received support during this developmental stage.

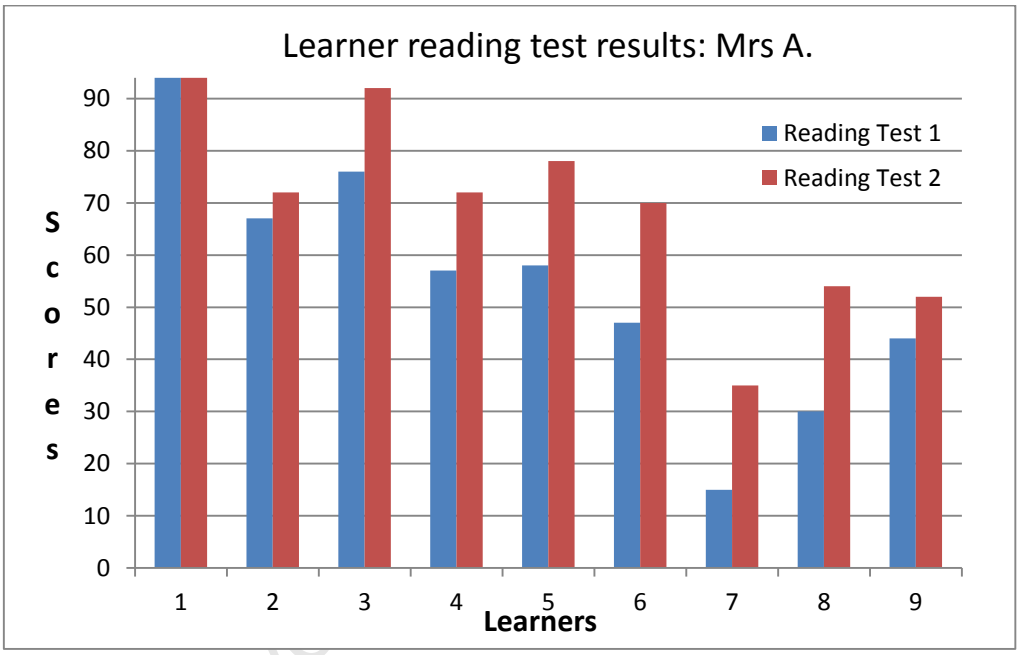

Figure 1: Mrs A. (School 4) learner data for reading tests 1 and 2. (In the stratified sample of learners, learners 1-3 were deemed to be of high, 4-6 of medium, and 7-9 of low ability.)

In some instances there were marked improvements from test 1 to test 2, among the bottom groups of learners (Learners 4-9). For example, in School 2, this was particularly evident in Learner #5 who had an increase in score of 29, and learner #9 who improved by 32 (Figure 2, p. 135). Learner #5 (Figure 2) had, between the first and second tests, received additional support from both the class teacher and his grandmother at home. He was considered a "disabled" learner because he had a deformity of his hand which had resulted in his struggling to write and had affected his self-esteem. At the time of the research project, he

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was initially shy and unresponsive, but when the second test occurred there was a marked improvement and he happily chatted during the testing period. His teacher, Ms B., shared with me that she had spent many lunch breaks working with him and that she had managed to get support from the parents who worked with him to consolidate his phonics and sight words.

Learner #9 was a second-language learner who had responded well to extra lessons in the afternoon and to use of the mobile library. Although no official extra-lessons programme was in place (because of problems around transport), teachers noted those learners who stayed late in aftercare, and kept them in their classes for extra lessons. Learner 9 was such a case. Furthermore, he received support from his father who worked with him regularly. Both the aforementioned examples exhibit support from both the school and home environments. This was a characteristic and typical scenario in cases where learners performed or improved exceptionally.

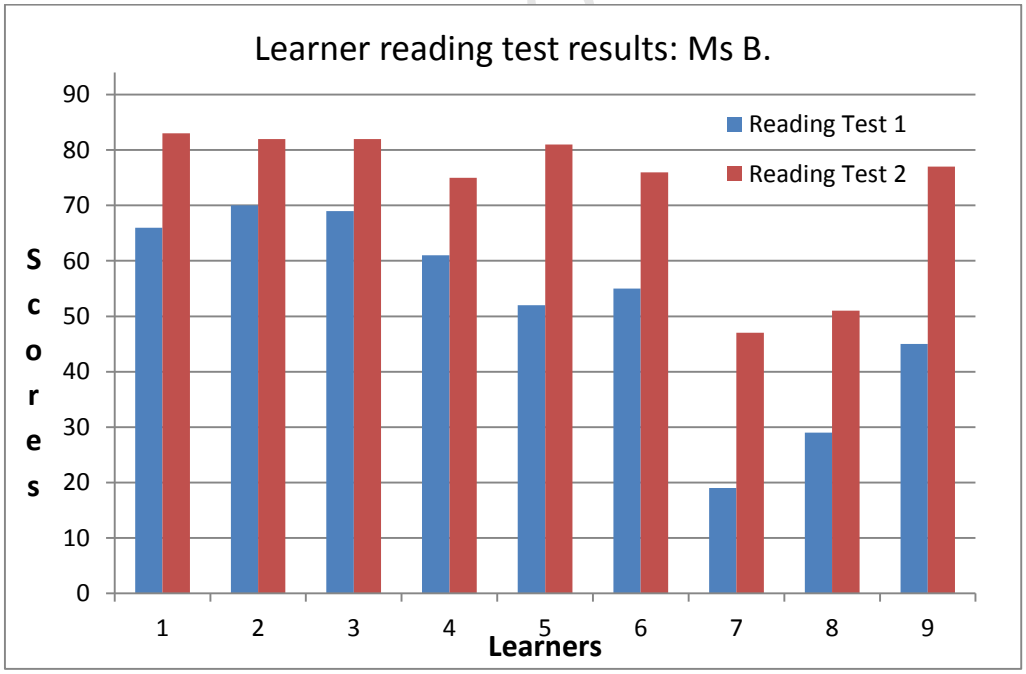

Figure 2: Ms B (School 2) learner data for reading tests 1 and 2. (In the stratified sample of learners, learners 1-3 were deemed to be of high, 4-6 of medium, and 7-9 of low ability.)

Statistical tests were used to determine whether or not there was a difference between the mean values of tests 1 and 2, per teacher. Since the scores for the tests were not normally

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distributed, median values had to be used as representative of the average. Ordinarily, a paired t-test would have been applied; however, since the same students wrote both tests 1 and 2, resulting in skewed distributions, a non-parametric version of the paired t-test was applied: the Wilcoxon signed rank test.

Table 3: *Reading results.*

	Reading	n (number of learners)	Lowest score	Highest score	Median score	25th Percentile	75th Percentile
Overall	Test 1	126	5	94	50	29	70
	Test 2	126	28	94	73.5	60	82
	Difference (absolute)	126	0	46	20	12	30
	Difference (% change)	126	0	560	40.0	17.3	108.3

Table 3 summarizes the statistical results for the full 14-class sample. It shows a significant shift between tests 1 and 2: median score shifted from 50 (range 29-70) to 73.5 (range 60-82), which is a highly significant change (Wilcoxon signed rank test on absolute difference: $Z = -9.716$, $p < 0.0001$). Improvement was expected between the first and second tests as the learners had moved from simply memorizing phonics in the first term, to consolidating sight words in the second term, which allowed them to read greater portions of text.

Teachers were ranked according to improvements in test scores, expressed as absolute difference between the medians (Table 4, p. 138). (Absolute difference was used in preference to the percentage difference because percentage difference tends to over-emphasize improvements made by learners who scored low in the first test and, conversely, under-emphasize the improvements of learners who scored high in the first test. This issue is discussed further near the end of this section.) Mrs P. from School 3 showed the greatest

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improvement with 33 (Fig. 3, p. 139), followed by Mrs K. and Mrs F., also from School 3, with 30 and 29, respectively. Mrs H., Mrs M. and Mrs G., from Schools 5 and 1, displayed the least significant shifts between tests 1 and 2 with changes of 13, 11 and 11, respectively (Table 4, p. 138).

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Table 4: *Change in reading results, per teacher. Teachers are ranked according to median absolute change in reading scores.*

Teacher	Variable	N	Minimum	Maximum	Median	25th Percentile	75th Percentile
Mrs P.	Difference (absolute)	9	13	46	33	31	39
	Difference (% change)	9	39.4	330	148.3	103.3	271.43
Mrs K.	Difference (absolute)	9	12	46	30	23	36
	Difference (% change)	9	18.8	287.5	93.8	37.7	125.9
Mrs F.	Difference (absolute)	9	0	40	29	21	33
	Difference (% change)	9	0	200	117.9	65.9	137.5
Ms S.	Difference (absolute)	9	6	36	26	15	31
	Difference (% change)	9	8.3	560	67.4	19.7	128.6
Mrs F.K.	Difference (absolute)	9	9	43	26	17	28
	Difference (% change)	9	13.2	520	60.9	32.1	195.5
Mrs R.	Difference (absolute)	9	13	39	22	19	25
	Difference (% change)	9	17.1	177.3	39.7	30.5	76.7
Ms B.	Difference (absolute)	9	12	32	21	14	28
	Difference (% change)	9	17.1	147.4	38.2	23	71.1
Ms D.J.	Difference (absolute)	9	4	32	18	13	30
	Difference (% change)	9	4.4	128	25.4	17.3	76.5
Mrs V.R.	Difference (absolute)	9	0	38	16	13	25
	Difference (% change)	9	0	156.3	64	19.7	127.8
Mrs A.	Difference (absolute)	9	0	24	16	8	20
	Difference (% change)	9	0	133.3	26.3	18.2	48.9
Mrs J.	Difference (absolute)	9	0	27	14	10	19
	Difference (% change)	9	0	270	32.1	12.8	100
Mrs H.	Difference (absolute)	9	0	38	13	6	19
	Difference (% change)	9	0	122.6	25.5	8	46.7
Mrs M.	Difference (absolute)	9	0	33	11	3	28
	Difference (% change)	9	0	100	15.1	3.8	77.8
Mrs G.	Difference (absolute)	9	7	38	11	8	12
	Difference (% change)	9	8.5	122.6	15.5	11.4	16

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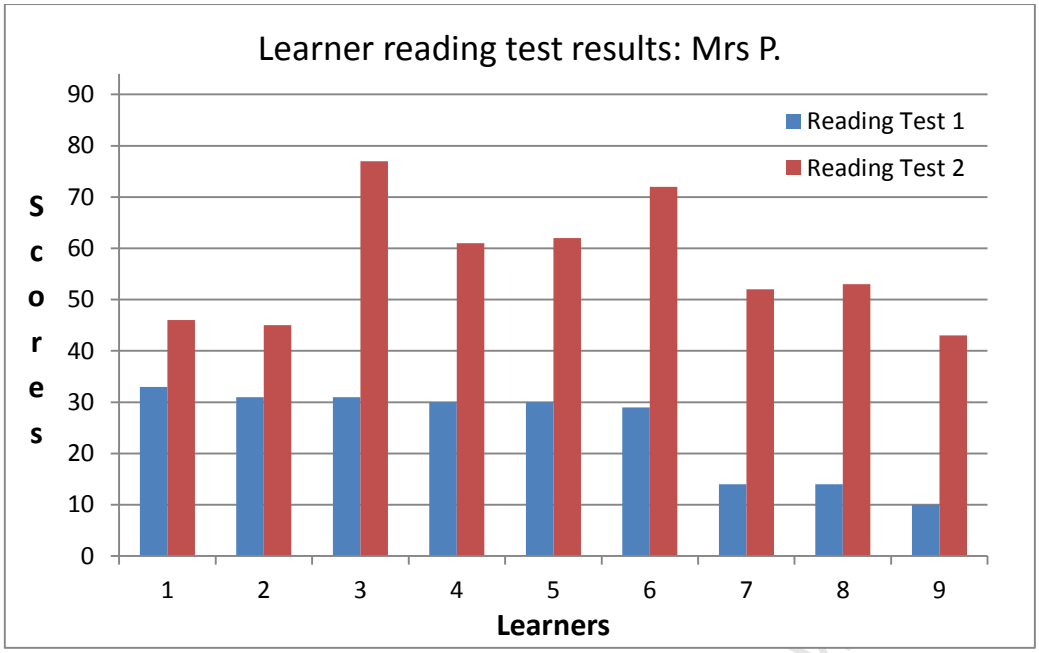

Figure 3: Mrs P. (School 3) learner results for reading tests 1 and 2. (In the stratified sample of learners, learners 1-3 were deemed to be of high, 4-6 of medium, and 7-9 of low ability.)

Mrs P. was a teacher who clearly enjoyed her job and demonstrated this both in her enthusiasm for her subject matter and in the way she spoke about her learners, all of whom were male. She recognised their need to move about on a regular basis and built this into her lesson with actions and songs between phases of a lesson. She frequently responded to questions about why she taught in a particular way, with statements such as: "I don't know. I just do it because it works." This suggested that she was drawing from her many years of experience. She had spent a substantial portion of her teaching career, 20 years, teaching in Afrikaans, but appeared comfortable teaching in English. Learners 3, 6 and 8 showed the most significant shift between tests 1 and 2 (Figure 3, p. 139). Learner 3 had a difference of 46 points, learner 6 a change of 43 points and learner 8 a difference of 39 points. Four of Mrs P.'s learners scored an improvement of above 30. Overall her learners evidenced a significant shift between tests 1 and 2 (Figure 3, p. 139).

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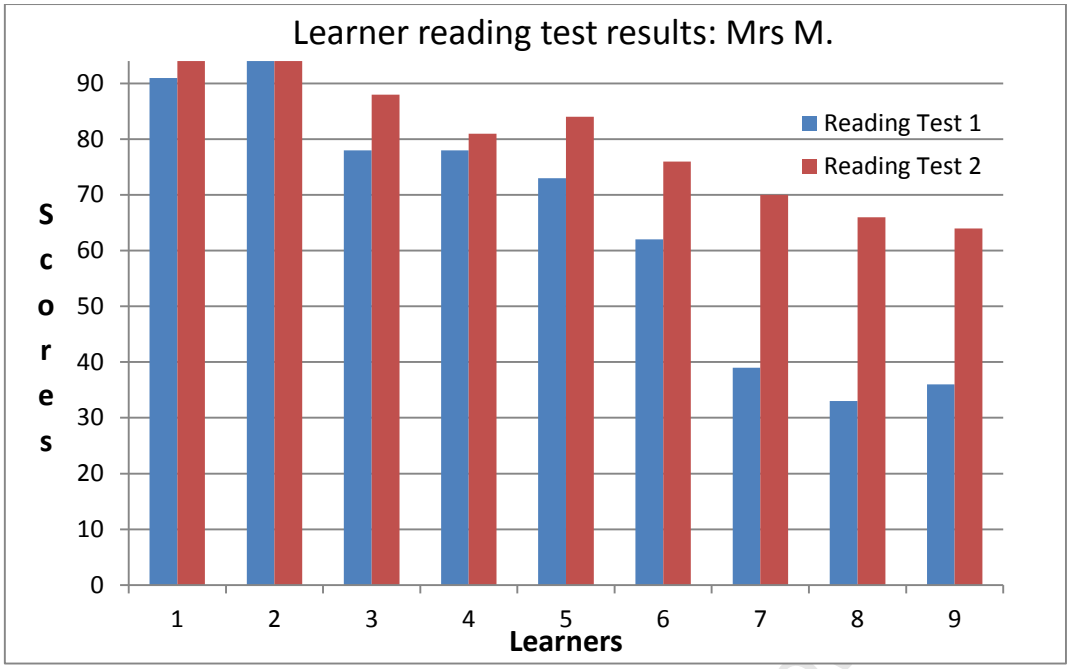

Figure 4: Mrs M. (School 1) learner results for reading tests 1 and 2. (In the stratified sample of learners, learners 1-3 were deemed to be of high, 4-6 of medium, and 7-9 of low ability.)

Mrs M. showed one of the least significant shifts in her learner results between reading tests 1 and 2. Learner 2 is another example of a learner who was already reading fluently at the point of applying test 1 and consequently did not improve in test 2. Mrs M.'s most significant learner results were in learners 7, 8 and 9. Learner 7 had a point difference of 29; learner 8 a difference of 33, and learner 9 a difference of 28.

Learner 9 was one of a twin and had been identified in the first term as a learner "at risk"[16]. For this reason she had been receiving extra lessons with the official remedial educator and with a parent who volunteered her services and worked with groups of learners during class time. Learner 8 had been supported with a combination of additional work that was sent home, remediation from the class teacher during class time and, at the end of the research period, "Lucky Lates" which is a euphemistic term given to a group of learners who

[16] In South African schools in the first term, Grade One learners are required to take a 'baseline' test which determines their ability. Learners who are seen to be falling below the class average are identified as being 'at risk', which means they need remediation in order to avoid repeating the grade.

stay after school. They are given time, usually a half hour, with their class teacher who works with a small group of not more than six learners.

It should be noted that the starting points in test 1 for Mrs M.'s learners were considerably higher than those of Mrs P. This could be attributed to the fact that Mrs M. was from School 1, a former Model C school serving a more affluent demographic, and Mrs P. was from School 3, an under-privileged school. In the interviews, it was noted by the teachers from School 1 that the parents were generally supportive of their children and regularly did homework, signed message books and stimulated their children through bedtime stories, visits to libraries and outings. The school was able to provide term outings and visits from specialists to the school. For example, during the research period, filming had to be rescheduled twice because on one occasion "Eagle Encounters"[17] was visiting, and the second time because "Hooked on Books"[18] were presenting excerpts from children's literature to the learners. These were examples of the types of stimulation that the school organized for the learners.

School 3 did not have comparable stimulus activities. They did not have a school hall and performed their school assemblies outside or over the classroom intercoms. The teachers expressed frustration during their interviews that they did not have the funds available to take the learners on outings, and that the paper work associated with applying to take learners for outings was problematic, and that transport was too expensive. This meant that learners had not gone on an outing in the past three years. The teachers said that some parents tried to support the homework process, but that most parents worked long hours, books were not

[17] Eagle Encounters is an organization that rescues birds of prey and is aligned with a cheetah sanctuary. They take cheetahs to schools to educate learners about the wildlife of South Africa.

[18] Hooked on books is a drama group that promotes reading through presenting excerpts from literature.

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available at home and despite a "Word works"[19] programme being available, parents could not attend because the hours were not practical and transport was a problem. They struggled to introduce a "Lucky Lates" programme because most children went home on a school minibus and would miss their ride if they had to stay after school for lessons. This meant that teachers gave limited extra time after hours and rather worked with learners during break time. These differences in support programmes between relatively privileged and under-privileged schools can also be regarded as characteristic and typical.

Table 5: *Changes in reading scores per teacher, ranked by Z value (Wilcoxon signed rank test).*

Teacher	Z value	*p* value	Conclusion
Mrs G. (School 1)	-2.67	< 0.01	significant
Ms D.J. (School 1)	-2.668	< 0.01	significant
Mrs K. (School 3)	-2.668	< 0.01	significant
Ms S. (School 5)	-2.668	< 0.01	significant
Mrs P. (School 3)	-2.666	< 0.01	significant
Mrs F.K. (School 2)	-2.666	< 0.01	significant
Mrs R. (School 5)	-2.666	< 0.01	significant
Miss B. (School 2)	-2.666	< 0.01	significant
Mrs F. (School 3)	-2.613	< 0.05	significant
Mrs J. (School 2)	-2.613	< 0.05	significant
Mrs A. (School 4)	-2.613	< 0.05	significant
Mrs V.R. (School 3)	-2.613	< 0.05	significant
Mrs H. (School 5)	-2.613	< 0.05	significant
Mrs M. (School 1)	-2.613	< 0.05	significant

All teachers (100%) achieved a significant improvement in learner scores. It is notable that teachers from the same school were generally not clustered with similar levels of improvement, and also that teachers at under-privileged schools were not clustered at the

[19] "Wordworks" was established by Shelley O'Carroll and Brigid Comrie in 2005 to support and improve the early language and literacy development of children in South Africa. The Home School Partnership programme (HSP) is designed to operate one afternoon a week at school with the parents attending the session and being guided as to how to assist their child with homework.

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bottom of the ranking, or teachers from privileged schools at the top (Table 5, p. 142 Figure 6, p. 145). Overall, teachers achieved rather similar levels of improvement in reading skill.

It was evident that learners at relatively low levels of reading skill in test 1 achieved greater absolute and percentage improvements in test 2 than learners at relatively higher levels of initial skill. This outcome could be expected in view of the fact that learners of similar age have similar potential for acquiring reading skills, and those who are already functioning at an advanced level continue to learn within limited boundaries of potential improvement, whereas potential improvement in learners who start from a low base level is greater.

The negative correlation between improvement in test scores and entry-level score in test 1 was statistically tested and found to be highly significant for both absolute and percentage differences (Figure. 5; correlation coefficient (Rho) = -0.7906, $p < 0.0001$; Rho = -0.9578, $p < 0.0001$, respectively). However, it was evident that use of the percentage difference would introduce a stronger bias in the measurement of change in scores because all learners with relatively high initial scores would show relatively little percentage improvement (Figure. 5, below). For this reason it was decided to use absolute difference as the basis of comparison between teachers' outcomes (Figure. 6, p. 145). Nevertheless, it should be noted that the effect of entry-level performance of learners in reading remained a confounding variable in assessing the pedagogical performance of teachers. This will be discussed further in the Discussion chapter.

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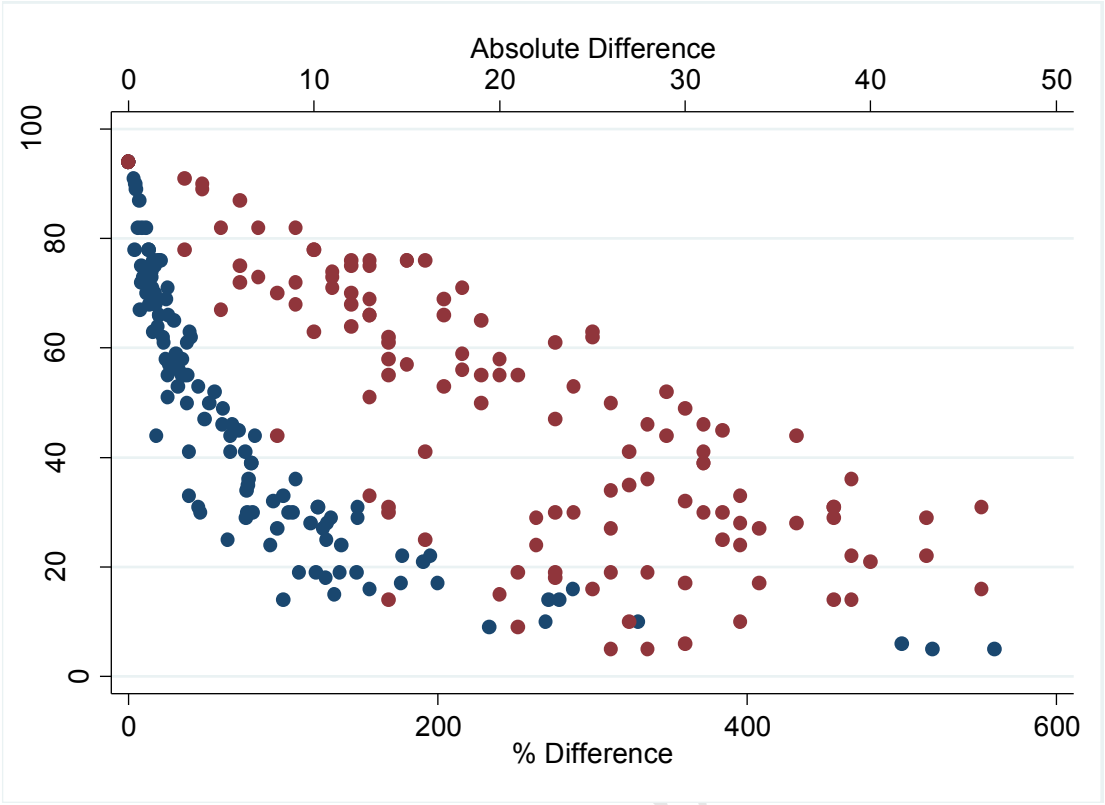

Figure 5: Change in reading scores correlated with initial score (test 1). Strong negative correlations were evident for both absolute (red) and percentage (blue) differences. However, note the exaggerated percentage difference effect on relatively high initial scores.

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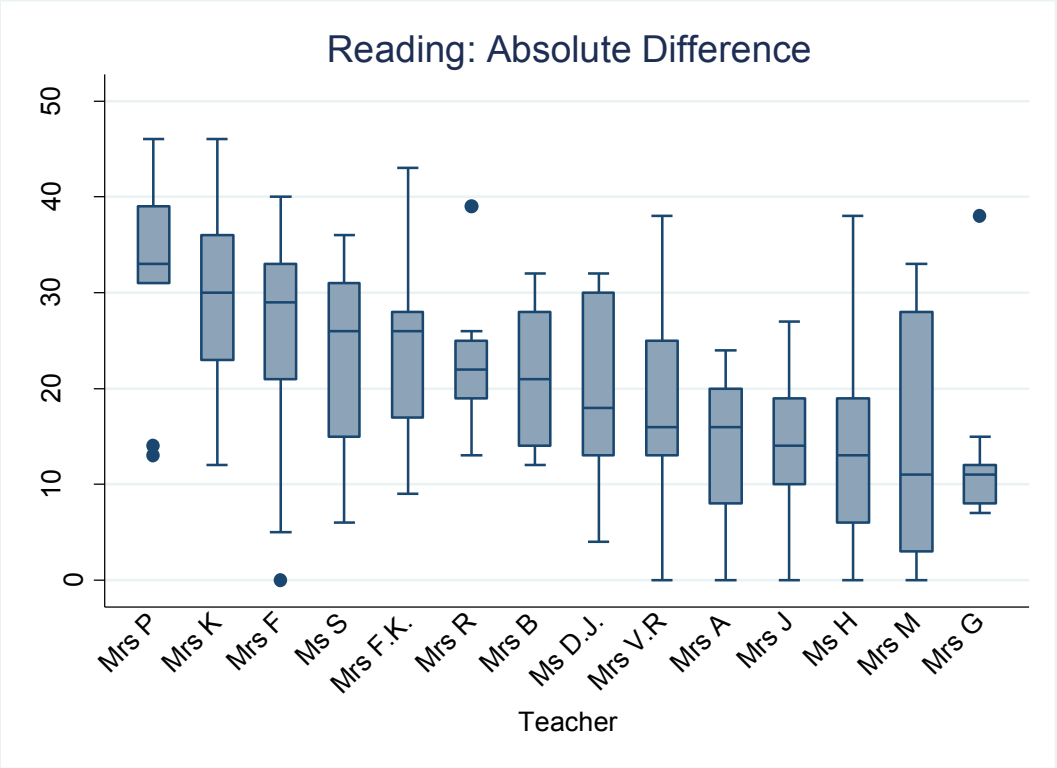

Figure 6: Reading scores: absolute difference between tests 1 and 2, per teacher (Wilcoxon signed rank test). The solid bars show the interquartile range (25th percentile value to the 75th percentile value) with the middle horizontal line reflecting the median value. The whiskers extend outward to the minimum and maximum values not calculated as outliers, and the dots represent outlying values (values greater than 2.5 times the IQR).

Schools were ranked according to the degree of improvement in reading achieved (Table 6, below). School 3, at the top of the list, was one of the least privileged schools, followed by Schools 1, 2 and 5 with similar scores. Schools 1 and 5 were former Model C schools and School 2 an under-privileged school. (Note that School 2, in addition to being under-privileged, had the highest percentage of English second language learners, and the shortest period between tests, which suggests that it performed well above expectation.) School 4, with the lowest level of improvement, was a privileged private school. The effect of entry-level reading ability on subsequent improvement, discussed above, was clearly an important factor in pushing School 4 down in the ranking.

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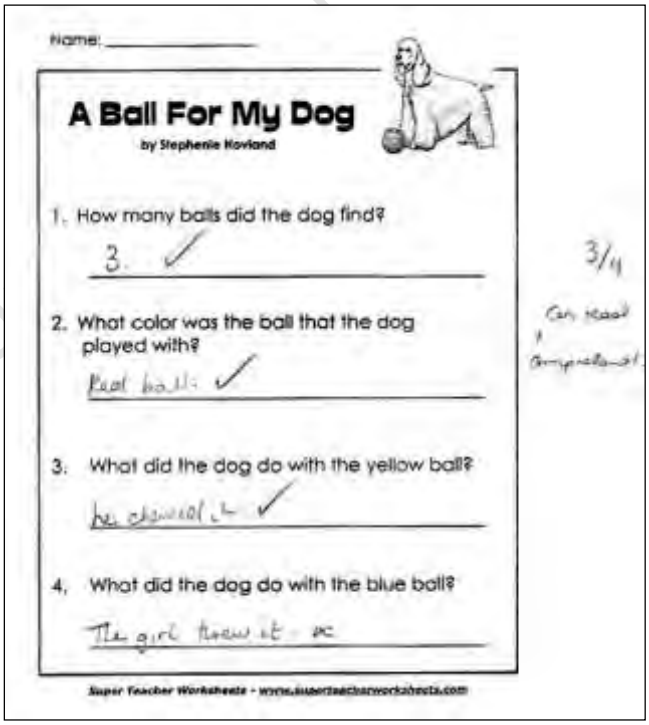
Table 6: *Reading results per school, ranked by Z value (Wilcoxon signed rank test) measuring difference between learner scores on tests 1 and 2.*

School	Z value	*p* value	Conclusion
3	-5.21	< 0.001	highly significant
1	-4.531	< 0.001	highly significant
2	-4.531	< 0.001	highly significant
5	-4.53	< 0.001	highly significant
4	-2.613	< 0.05	significant

5.2.2 Comprehension results

The same comprehension test was applied in both tests 1 and 2 (see Research Instrument 4, Appendix, p. 300). The test was based on the reading exercise and consisted of four questions. To answer the questions the learners had to understand the sequence of events in the story and recall that sequence. Learners dictated their answer to the researcher who wrote down exactly what they said.


Name: _____

A Ball For My Dog

by Stephenie Haviland

1. How many balls did the dog find?

3. ✓

2. What color was the ball that the dog played with?

Red ball. ✓

3. What did the dog do with the yellow ball?

he chewed it ✓

4. What did the dog do with the blue ball?

The girl threw it. xc

3/4

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Figure 7: An example of a Learner's comprehension test script.

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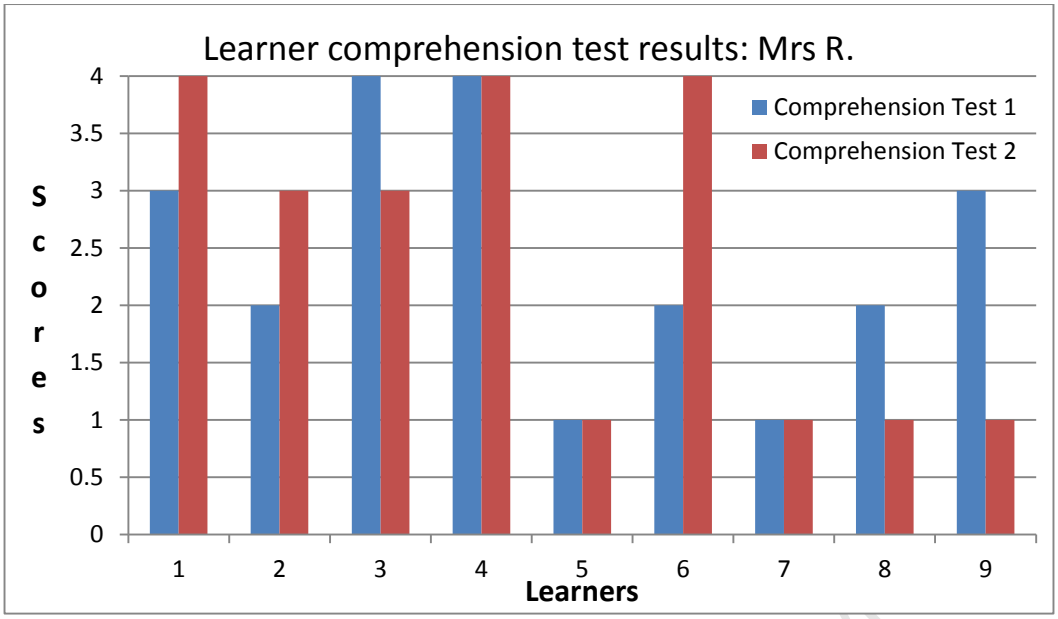

Figure 8: Mrs R. learner comprehension results for tests 1 and 2.

Some learners regressed in the second test (Figure 8). An example of this is illustrated in Mrs R's results. It is evident that, for Mrs R., learners #3, #8, and #9 deteriorated in the second test. This was seen in 22 of the 126 learners among ten of the 14 teachers. Individual learner scripts, together with field notes, were examined closely to determine causes. Learner #3, who was in the top reading group, scored full marks in her first comprehension test, but got one answer wrong in the second. The question being asked had to do with the colour of the dog's ball and what he did with it. It was noted in the field notes of the second test that the learner did pause and think carefully and that she counted the different coloured balls on her fingers as she tried to recall which colour belonged to which activity. This suggests that she was consciously trying to recall the sequence of the story and how each coloured ball related to the dog's activities. It must therefore be concluded that she simply miss-counted and got confused by which ball colour related to which activity.

Learner #8 was a second language learner who was struggling to consolidate her phonics and was only just beginning to blend sounds. She was unsure of her sight words and stated that she only read at home "sometimes". This meant that she perhaps did not absorb

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much of the story during the time of reading to the researcher. This aspect was addressed by the researcher re-reading the text to each learner after they had read it to the researcher. It was intended that the repetition of the text would override difficulties encountered by learners who struggled to read and therefore could not easily comprehend what they, themselves, had read. It was noted that learner #8 appeared to be guessing the answers to the comprehension test.

Learner #9 was young and had just turned 6 at the time of testing. During the reading portion of his test, he struggled to remember his sight words and sound-out words and to recognize his phonics. As in the case of learner #8, this could have resulted in his being unable to comprehend the text because he was distracted by the act of decoding. It was noted that he was struggling to concentrate and appeared to be guessing. If the learner guessed the answers, there was potential for either a correct or an incorrect guess; such random guessing could, therefore, account for drops in scores between tests 1 and 2.

Table 7: *Change in comprehension results from test 1 to test 2. Teachers ranked by improvement in median absolute difference.*

Teacher	Variable	n	Minimum	Maximum	Median	25th Percentile	75th Percentile
Mrs H.	Difference (absolute)	9	0	3	1	1	2
	Difference (% change)	9	0.0	200.0	50.0	25.0	66.7
Mrs P.	Difference (absolute)	9	-2	4	1	0	2
	Difference (% change)	9	-40.0	400.0	50.0	0.0	66.7
Mrs V.R.	Difference (absolute)	9	-3	3	1	-1	1
	Difference (% change)	9	-75.0	150.0	33.3	-20.0	66.7
Mrs M.	Difference (absolute)	9	0	2	0	0	2
	Difference (% change)	9	0.0	200.0	0.0	0.0	66.7
Mrs G.	Difference (absolute)	9	0	2	0	0	1

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Mrs K.	Difference (% change)	9	0.0	100.0	0.0	0.0	33.3
	Difference (absolute)	9	0	1	0	0	1
Ms B.	Difference (% change)	9	0.0	33.3	0.0	0.0	25.0
	Difference (absolute)	9	-1	4	0	-1	2
Mrs F.K.	Difference (% change)	9	-33.3	400.0	0.0	-33.3	66.7
	Difference (absolute)	9	-1	3	0	0	1
Ms S.	Difference (% change)	9	-25.0	300.0	0.0	0.0	50.0
	Difference (absolute)	9	-1	2	0	0	1
Mrs A.	Difference (% change)	9	-25.0	100.0	0.0	0.0	100.0
	Difference (absolute)	9	-1	2	0	0	2
Mrs J.	Difference (% change)	9	-33.3	100.0	0.0	0.0	66.7
	Difference (absolute)	9	-2	4	0	0	1
Mrs R.	Difference (% change)	9	-40.0	400.0	0.0	0.0	25.0
	Difference (absolute)	9	-2	2	0	-1	1
Mrs F.	Difference (% change)	9	-50.0	66.7	0.0	-20.0	25.0
	Difference (absolute)	9	-2	1	0	-1	1
Ms D.J.	Difference (% change)	9	-40.0	100.0	0.0	-33.3	33.3
	Difference (absolute)	9	-3	2	0	-1	1
	Difference (% change)	9	-75.0	200.0	0.0	-20.0	25.0

The top position was occupied by Mrs H. from School 5, a school with a mixed middle to lower class demographic, and positions two and three by Mrs P. and Mrs V.R. at schools drawing from the lower socio-economic stratum (Table 7, p. 148). (Although Mrs H. and Mrs P. had the same median score, Mrs P. had a negative change in minimum scores and was therefore placed second. This negative change was because a number of her learners went down in their second comprehension scores.) Positions four and five were occupied by Mrs M. and Mrs G. from School 1 which is a former Model C school that draws from a middle to upper socio-economic demographic. Mrs P., Mrs V.R. and Mrs G. were all mature teachers with more than 40 years of experience between them, while Mrs H. was a second-year teacher

and Mrs M. a third-year teacher. Both Mrs H. and Mrs M. made extensive use of their smart-board as a vehicle for mediation and it should be noted that the top six teachers all had access to smart-boards in their own classrooms. Each of them made use of the smart-board but some more than others. Further illustration of the nature of the usage of this resource is discussed in the qualitative portion of this chapter (Extract 5, p. 185) and in the Discussion chapter.

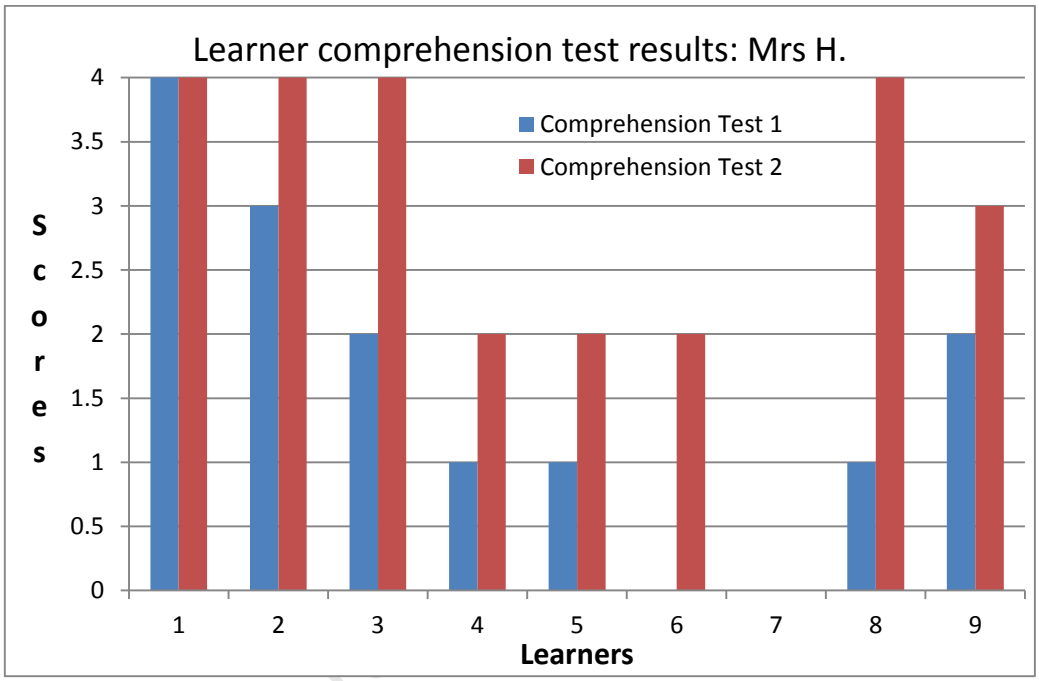

Figure 9: Mrs H. learner comprehension results for tests 1 and 2.

Mrs H.'s learner results (Figure 9) were examined closely because she scored the most significant learner improvement in comprehension. Learner #7 did not score in either test 1 or 2. On examination of her script and the relevant field notes, it was noted that Learner #7 was repeating Grade One and had some learning difficulties which the remedial teacher had suggested possible dyslexia. She had not yet consolidated the shape of her letters or made the connection between the symbol and the sound. She did not know any of her sight words and appeared nervous and dependent on the teacher for guidance. The field notes stated that she

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was hasty in her answers and appeared to be guessing. This was noted for both tests 1 and 2, and she did not score in either.

Learner #8 scored the most significant improvement, from a score of one to four (full marks). In the first reading test, this learner presented with difficulties sounding out, blending and recognizing letters and was receiving some remedial support from the class assistant. In the second test, he was able to recognize more of his sight words and, although still struggling with the visual aspects of letters, he was able to recognize initial sounds. The field notes stated that he showed exceptional concentration when the researcher read the story and asked the questions. This suggests that he was using good listening skills to compensate for his visual difficulties. This potentially allowed him to comprehend a text even when his own reading abilities were still developing (Field, 2008).

Mrs H. had placed Learner #8 at a table by himself and told the researcher that she did this so that he would not be distracted by other learners and so that she could work with him on a one-on-one basis. This was observed once during the research period. Furthermore, it is possible that Mrs H.'s regular use of the smart-board may have benefitted this learner because the auditory repetition of letters and words could help him to memorize letter sounds together with a colourful visual image. Mrs H. made extensive use of an audio cassette with songs related to the "Letterland" reading system used in most South African classrooms. All the learners in her class were comfortable singing along to the alphabet songs and this ritual was performed at least once a day. This type of repetition may have accounted for her learners having better listening skills because they were used to having to listen to the smart-board in order to respond to games such as "sound match". This may have made it easier for them to answer the comprehension test as they are used to listening to a question and responding.

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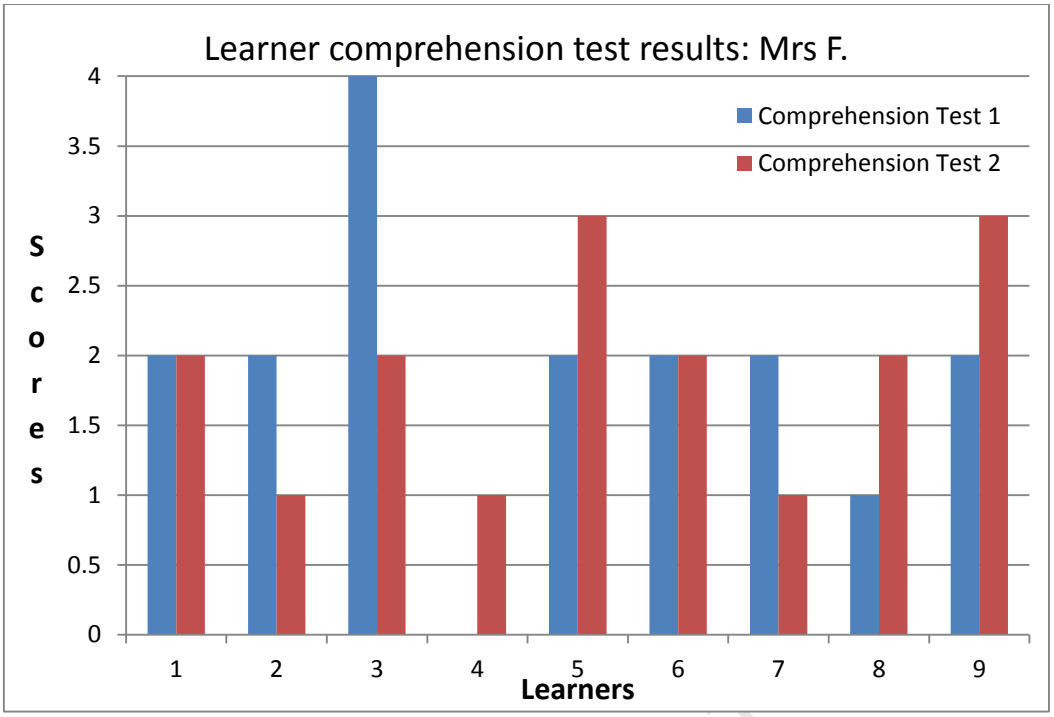

Figure 10: Mrs F. learner comprehension test results for tests 1 and 2.

Mrs F.'s learners evidenced the least significant improvement between comprehension tests 1 and 2 (Figure 10). Mrs F. was a middle-aged teacher who had been teaching for 15 years. She frequently expressed frustration at having to teach boys and felt that girls were better behaved and "easier". School 3 where she was teaching has a policy of alternating the gender of classes so that one year a Grade One teacher would teach all girls and the following year all boys. Mrs F. had been assigned a class of boys for 2013. Mrs F.'s poor results could be attributed to her teaching style (see page 43 for number of modes used by teachers) which was controlling and involved a lot of organizing of learners and physically placing them at their desks or on the mat. This took as much as 15 minutes at the beginning of some lessons. Her learners were required to answer most questions in unison and she made extensive use of repetition of sentence strips and flash cards. She did not like her learners to talk unless they were reciting according to instructions.

It is interesting to note that learner #4 did not score any points in the first test and then scored one point in the second test (Figure 8, p. 147). Examination of her script revealed that

learner #4 was a second-language learner who was repeating Grade One. She struggled in both reading tests with her visual recognition of letters, memorizing sight words and phonics. Field notes evidenced her difficulties with concentration during the comprehension test. English was her second language which probably caused her additional difficulties with the comprehension test as the words would have been unfamiliar and not part of her existing knowledge. (Dornbrack, 2009).

Learner #3 was a French-speaking second-language learner who arrived in Grade One able to read fluently. His teacher, Mrs F., used him to demonstrate reading to his peers and he appeared confident and happy to do so. It is interesting, however, to note that in the second comprehension test his mark went down. This can be attributed to a certain amount of guessing (noted in the field notes) and a possibility that, as with learner #4, comprehension was problematic for a second-language learner. That is to say, he had mastered the mechanics of reading, but did not necessarily always understand what he was reading.

As discussed for reading scores (previous section), improvement in comprehension scores was strongly negatively correlated with initial (test 1) scores (Figure 11, below). As for reading, it was decided to use absolute differences in scores, rather than percentage differences, for the ranking of teacher and school outcomes, because absolute difference provides a less skewed view of degree of improvement, albeit that absolute difference in scores is also significantly negatively correlated with entry level (Figure11; correlation coefficient (Rho) = -0.5937, $p < 0.0001$ for percentage difference, and Rho = -0.5273, $p < 0.0001$ for absolute difference).

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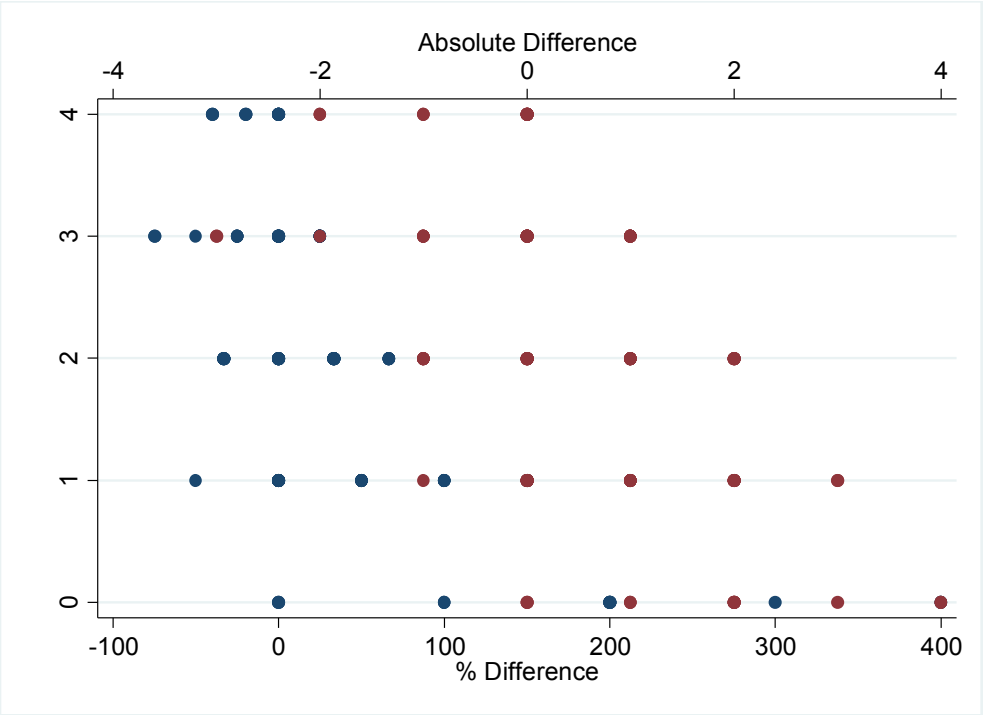

Figure 11: Change in comprehension scores correlated with initial score (test 1). Strong negative correlations were evident for both absolute (red) and percentage (blue) differences. However, note the exaggerated percentage difference effect on relatively high initial scores.

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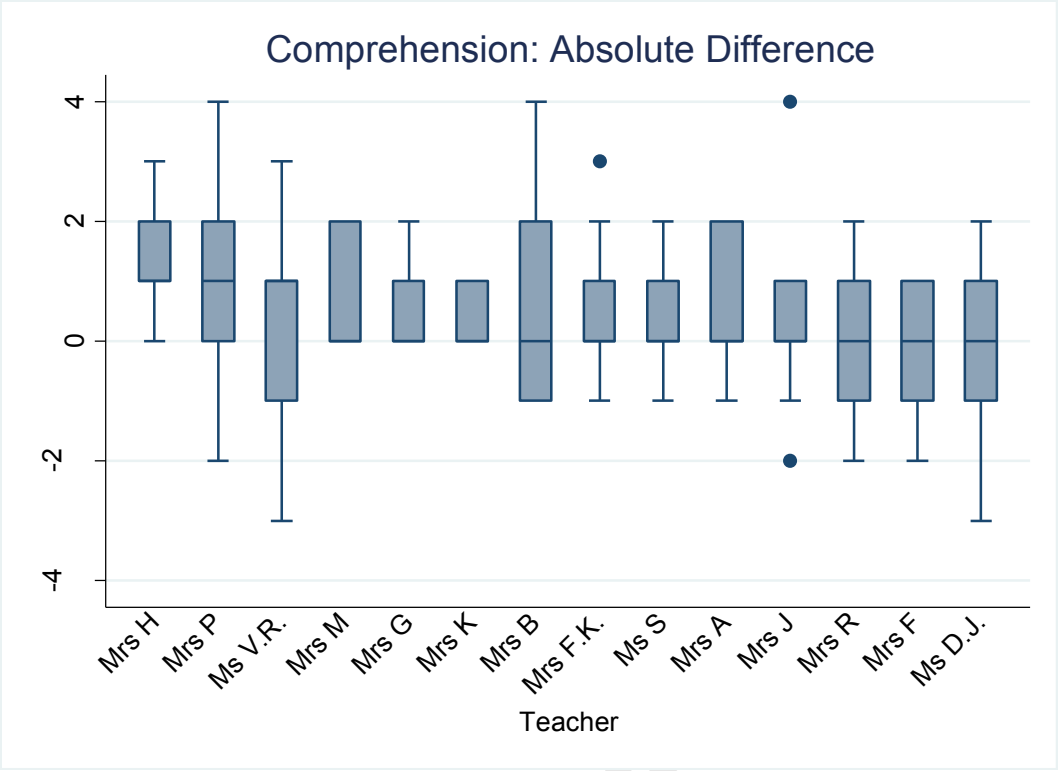

Figure 12: Comprehension scores: absolute difference between tests 1 and 2, per teacher (Wilcoxon signed rank test). The solid bars show the interquartile range (25th percentile value to the 75th percentile value) with the middle horizontal line reflecting the median value. The whiskers extend outward to the minimum and maximum values not calculated as outliers, and the dots represent outlying values (values greater than 2.5 times the IQR).

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Table 8: *Changes in comprehension scores per teacher, ranked by Z value (Wilcoxon signed rank test).*

Teacher	Z value	*p* value	Conclusion	Number of learners whose scores deteriorated
Mrs H. (School 5)	-2.535	< 0.05	significant	0
Mrs K. (School 3)	-2.0	< 0.05	significant	0
Mrs M. (School 1)	-1.987	< 0.05	significant	0
Mrs G. (School 1)	-1.982	< 0.05	significant	0
Ms S. (School 5)	-1.447	> 0.05	not significant	1
Mrs F.K. (School 2)	-1.446	> 0.05	not significant	1
Mrs P. (School 3)	-1.382	> 0.05	not significant	2
Mrs A. (School 4)	-1.163	> 0.05	not significant	2
Ms B. (School 2)	-0.905	> 0.05	not significant	3
Mrs V.R. (School 3)	-0.857	> 0.05	not significant	3
Mrs J. (School 2)	-0.44	> 0.05	not significant	2
Mrs F. (School 3)	-0.123	> 0.05	not significant	3
Mrs R. (School 5)	0	> 0.05	not significant	2
Ms D.J. (School 1)	0.061	> 0.05	not significant	3

Only four teachers (29%) had a significant change in comprehension scores (Table 8). As discussed, in some instances, individual learners did worse in the second test (e.g. Figure. 10 p. 152). Generally this was attributed to learners struggling to concentrate, underlying learning problems, learning in a second language, and guessing of answers.

Mrs H. had the greatest absolute difference in her learners' comprehension results, in contrast to Mrs R. and Ms D.J. with the least positive changes (Figure 12, p. 155 and Table 8, p. 156). The school with the most significant improvement was School 5, a former Model C school (Table 9, p. 157), which also had the teacher with the top comprehension result, namely Mrs H. (Table 8, p. 156 and Figure 12, p. 155). Schools 1 and 3, a former Model C and under-privileged school respectively, also had significant improvements in comprehension.

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As with reading (see discussion in the previous section), entry-level abilities in comprehension were a significant determinant of subsequent improvement, resulting in a schools such as Schools 2 and 4 appearing to perform poorly, whereas the outcome is more a reflection of relatively good initial comprehension abilities and thus relatively high initial scores. This is most evident in the case of Mrs J. with an initial median score of 3 and a subsequent median score also of 3 (see Table 7, p. 148) and thus no significant improvement (see Table 8, p. 156), but an initial score of 3 must be seen as high relative to, for example, Mrs H. with an initial median score of 1 and a subsequent median score of 3, giving a significant improvement. As with reading, the initial abilities of learners was found to be a confounding variable in attempts to measure the efficacy of pedagogic modes. This will be discussed more fully, later.

Table 9: *Comprehension results per school, ranked by Z value (Wilcoxon signed rank test) measuring difference between learner scores on tests 1 and 2.*

School	Z value	*p* value	Conclusion
5	-2.428	< 0.05	significant
1	-2.119	< 0.05	significant
3	-2.036	< 0.05	significant
2	-1.531	> 0.05	not significant
4	-1.163	> 0.05	not significant

5.2.3 Problem solving

When learners were engaged in writing a sentence drawn from their knowledge of the reading text, the researcher looked for evidence of problem-solving skills. Learners were required to write their own sentence explaining what the dog does with the ball. The researcher asked the learners to first tell her what they wanted to write and then to try to write it. They were provided with two lines on the worksheet on which they could write their sentence. There were some words such as "dog" and "ball" written in the text of the

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worksheet. Some of the learners used these when trying to decode and write their sentence. The researcher looked for three pieces of evidence. First that the learners noticed such words and copied them into their sentences. Second, that learners planned their text appropriately on the two lines, and thirdly, that the learners determined how to write a word by sounding it out or making use of their knowledge of initial sounds. In addition, the researcher observed whether the learners were confident to start writing their sentences immediately or if, instead, they instantly required assistance from the researcher. If they were confident, it was assumed that they had been doing sentence writing in class, and this was later confirmed through discussion with the class teacher. The phrase "can problem solve/can't problem-solve" was written on the script along with field notes to support any evidence of problem-solving techniques being used. In the example below this was seen in the comment "problems planning, prepared to try by self". The learner was then assigned a "yes" or "no" indicator to quantify their ability to problem solve. For analysis purposes, McNemar's test was applied.

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Figure 13: Example of learner script showing evidence of problem solving ability.

In the example (Figure 13) it can be seen that the learner wrote a sentence on one of the two lines provided and that his spacing was reasonable. His sentence makes sense and the letters are correctly formed. At the top of the page the researcher has written two words "plays" and "with". The learner requested assistance in writing these two words and wished to copy them. The field notes state "problems planning" which related to the learner having asked where to place the words of his sentence on the allocated lines. The notes do, however, indicate that the learner was able to problem solve in that he started to write by himself and only asked for assistance once he had established that he did not know how to plan or write a word. He did sound out the word "plays" as he copied it from the top of the page which suggests he had a problem-solving approach which he could use.

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Table 10: *Problem-solving results ranked by teacher. The four columns for problem solving indicate the direction of change from test 1 to test 2, with number of learners per direction.*

Teacher	Problem solving				Totals
	Yes→No	No→No	Yes→Yes	No→Yes	
Ms D.J. (School 1)	0	0	5	4	**9**
Mrs G. (School 1)	0	1	5	3	**9**
Mrs M. (School 1)	0	1	5	3	**9**
Mrs H. (School 5)	0	2	4	3	**9**
Mrs V.R. (School 3)	0	4	2	3	**9**
Mrs P. (School 3)	0	6	0	3	**9**
Mrs F. (School 3)	0	4	3	2	**9**
Mrs K. (School 3)	0	4	3	2	**9**
Mrs A. (School 4)	0	1	7	1	**9**
Ms B. (School 2)	1	1	6	1	**9**
Mrs F.K. (School 2)	0	2	6	1	**9**
Mrs R. (School 5)	0	3	5	1	**9**
Ms S. (School 5)	0	3	5	1	**9**
Mrs J. (School 2)	0	3	6	0	**9**
Totals	**1**	**35**	**62**	**28**	**126**

The best results for problem solving were obtained by Ms D.J. and Mrs G. Ms D.J. had five learners who were already problem solving during the first test and continued to do so in the second test. She also had four learners in the first test who did not problem solve, but in the second test demonstrated this capacity, giving her nine learners in total who were able to problem solve and placing her in top position. Mrs G. and Mrs M., in joint second place, had one learner who did not problem solve in the second test. All three top teachers were at the same school, namely School 1 (a former Model C school serving a relatively privileged community). During the interview, when asked how they promoted problem solving in the classroom, both Ms D.J. and Mrs G. indicated that their class discussions were an important part of encouraging the learners to explore possibilities. They felt that stories provided an effective vehicle for this type of discussion and made it their general *modus operandi* to pose questions that would require their learners to think. This was observed by the researcher

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when Ms D.J. discussed a story entitled "The New Trainers": she asked the learners what sort of shoes the little boy could use instead of making his new shoes muddy. The learners responded with "rain boot" and "He could take his shoes off and walk bare foot." This suggested that the learners were able to think about a situation and come up with solutions and were, therefore, more used to problem solving. The researcher also noted that, at School 1, of the 27 learners who participated in the comprehension test, 24 were able to problem solve in test 2.

Ms S. and Mrs J. had the weakest problem-solving results. Ms S. had only one learner improve from a "no" to a "yes". She was at School 5 which draws from a lower socio-economic demographic. Ms S. was a first-year teacher and, therefore, was probably still acquiring the skills to promote problem solving in her learners. The statistical analysis was not applicable to Mrs J. because there were no changes among her students: those that could not problem solve did not improve, and those that could, did not regress (Table 10, p. 160). Mrs J. was at School 2 which drew from an under-privileged demographic. Although Ms S. and Mrs J. came from different schools (Table 10), they both indicated in their interviews that problem solving was something they only addressed in their numeracy lessons and that it formed part of a specific lesson in "story sums". They did not see problem solving as part of thinking and reasoning or as a strategy that should be generally encouraged.

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Table 11: *Problem-solving results (McNemar test), ranked by teacher.*

Teacher	*p* value	Conclusion
Mrs D.J. (School 1)	< 0.05	significant
Mrs G. (School 1)	~ 0.05	near significant
Mrs M. (School 1)	~ 0.05	near significant
Mrs H. (School 5)	~ 0.05	near significant
Mrs V.R. (School 3)	~ 0.05	near significant
Mrs P. (School 3)	~ 0.05	near significant
Mrs F. (School 3)	> 0.05	not significant
Mrs K. (School 3)	> 0.05	not significant
Mrs A. (School 4)	> 0.05	not significant
Mrs F.K. (School 2)	> 0.05	not significant
Mrs R. (School 5)	> 0.05	not significant
Ms S. (School 5)	> 0.05	not significant
Ms B. (School 2)	> 0.05	not significant
Mrs J.* (School 2)	n. a.	n. a.

No change, therefore statistical test irrelevant.

Only one teacher (7%), Ms D.J. at School 1, showed a significant improvement in problem solving (Table 11). Ms D.J. had been teaching for five years and originally started out as a preschool teacher. It was interesting to note that she encouraged discussion between her learners and seemed relaxed with a "noisy" classroom environment. This could be attributed to her being used to the average preschool environment in which there is a high level of noise and discussion between learners and teachers, and conversant with the benefits of informal class discussion. This suggests that, through additional discussion, her learners had more opportunity to "unpack" new ideas and in so doing were able to problem solve (Harrison, 2011).

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Table 12: *Problem-solving results ranked by school. The four columns for problem solving indicate the direction of change from test 1 to test 2, with number of learners per direction*

School	Problem solving				Totals
	Yes→No	No→No	Yes→Yes	No→Yes	
1	0	2	15	10	**27**
3	0	18	8	10	**36**
5	0	8	14	5	**27**
2	1	6	18	2	**27**
4	0	1	7	1	**9**
Totals	**1**	**35**	**62**	**28**	**126**

The combined learner results per school were analysed: the former Model C school (School 1) that drew from a middle- to upper-class demographic yielded the most significant improvement (Tables 12, 13, below). This was followed by one of the less privileged schools (School 3) and another former Model C school (School 5 which drew from a relatively lower economic demographic). It is interesting to note that the school at the bottom of the list, School 4 represented by Mrs A., is a privileged private school. However, Mrs A.'s learners started with the best initial results (i.e., in test 1) with seven out of nine learners able to problem solve – the highest of all 14 groups (Table 10, p. 160), therefore it was not possible for a marked improvement to be achieved. This again points to the problem of comparing the performance of teachers where entry-level skills of their learners were widely divergent.

Table 13: *Problem-solving results (McNemar test) ranked by school.*

School	*p* value	Conclusion
1	< 0.01	significant
3	< 0.01	significant
5	< 0.05	significant
2	> 0.05	not significant
4	> 0.05	not significant

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Schools 1, 3 and 5 yielded statistically significant improvements in problem solving (Table 13, p. 163). These were former Model-C schools (schools 1 and 5) and an under-privileged school (School 3).

5.2.4 Summary

In this section on learner outcomes, it has been demonstrated that significant improvements took place between the first and second tests, especially in reading skills where all 14 teachers (100%) showed statistically significant improvements in their learner samples. The results for comprehension were less definite with only four teachers (29%) showing statistically significant improvements. Improvements in problem-solving skills were even less pronounced with only one teacher having a statistically significant improvement (and an additional five, near-significant improvements).

It may have been expected that the schools serving relatively privileged communities (Schools 1, 4 and 5) would have shown markedly better results than the under-privileged schools (Schools 2 and 3), but this was not the case. In all three areas of learning there were under-privileged schools that performed relatively well, often out-performing schools from higher socio-economic strata in terms of relative improvement of skills. However, a confounding factor in this regard was the fact that learners from privileged communities tended to score relatively high in the initial literacy test (test 1), making it difficult for improvement to be demonstrated in the subsequent test (test 2). For this reason, caution must be exercised in interpreting the relative effectiveness of the relevant teachers and the respective pedagogic modes that they employed.

By examining the teaching modes and teacher attitudes, we may gain a better understanding of the learner results. These findings are presented in the next two sections.

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5.3 Teacher data: analysis of film footage

Teachers were filmed while engaged in literacy lessons; approximately 120 minutes of footage was taken per teacher over three separate days. Days of filming were generally about one week apart.

The film footage was analysed by means of a coding schedule designed to determine the pedagogic modes used. These were scored according to frequency of occurrence, using a Lickert scale of 0 to 3. This provided a detailed analysis of the types of questions the teachers asked, how they assessed learners, what questions learners asked, the variety of tasks that comprised a lesson, goal setting, behavioural regulation and mediation. A Vygotskian framework was at the heart of the analysis with six of the ten modes grounded in his theoretical framework. The remaining four modes were determined empirically through observations during the pilot study and were added to provide a comprehensive suite of pedagogic modes as used by the teachers.

5.3.1 The pedagogic modes

The following 10 pedagogic modes where coded and analysed:

- *Zone of Proximal Development (ZPD)*: The teacher ascertains a learner's individual baseline abilities and then extends the learner's performance toward his individual potential.
- *Collaborative learning*: The teacher/peer is actively involved in helping the learner to develop his conceptual understanding through questions, probes and actions.
- *Practicing of concepts*: The teacher designs activities to use and practise new skills to allow for internalization.
- *Scaffolded learning*: The teacher breaks down knowledge into accessible components and provides support until the learner is able to independently perform the task.

- *Conscious mediation*: The teacher consciously assists learners to problem solve.
- *Existing knowledge and cultural tools*: The teacher exploits her own and the learners' knowledge and cultural backgrounds as tools to facilitate learning.
- *Rote learning*: The teacher employs verbal repetition of words and concepts by the learners to facilitate memorization.
- *Didactic teaching*: The teacher acts as the authority who transmits knowledge.
- *Worksheet-based teaching*: The teacher makes use of worksheets as a medium for learners to practise a concept.
- *Ability-group teaching*: The teacher works with small groups of learners who have been streamed according to their perceived academic ability.

Each of the 10 modes were divided up into 18 empirical indicators on the coding schedule (see Figure 14, below for an example). These empirical indicators are described below, with illustrative examples.

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Teaching mode	Empirical indicators	Code present	Lesson #	Comment
Practising of concepts	**Questions:** Knowledge-based questions: (K1) Knowledge-based questions: (K2) Guiding questions Rhetorical questions			
	Responses: What learner knows What learner doesn't know What question learners ask to show what they do/don't know			
	Assessment: Dynamic assessment Formal assessment Informal assessment			
	Mediation: Definition of scientific concepts Explanation of scientific learning Concrete consolidation Language of mediation (academic)			
	Developmentally appropriate: Types of activities – assisted/unassisted Task orientation 1 (goal setting) Task orientation 2 (regulation) Response to support – accepted/rejected			

Figure 14: A portion of the coding schedule for pedagogic modes, showing a single mode, namely practising of concepts, with the breakdown of components for analysis. Observations and codes were entered in columns to the right. (See Appendix, p. 282-290 for full schedule.)

The first area that was addressed was "questions", which was divided into four types. In "knowledge-based 1", the researcher was looking to see if the teacher was asking questions that were entirely closed ended and could only have one correct answer. For example "Is Chip a boy?" Secondly, in "knowledge-based 2", the researcher wished to determine if the teacher was asking questions that are essentially closed ended, but can lead to dispute or discussion. For example "What sound does this letter make?" Here the child may disagree with the sound that the teacher is expecting as in the case of the difference between a soft "c"

or a hard "c", consequently although the teacher has a predetermined answer in mind, the question can lead to some discussion. Thirdly in "Guiding questions" the researcher was looking to see if the teacher asked questions that would guide the learner's thinking. For example "When using my dictionary, will I find this word in the beginning, middle or the end?" Here the teacher is guiding the learner to understand that they must think about where the word would be placed in the alphabet and consequently where it would be located in the dictionary in order to find it speedily. Finally the last question that was identified was the "Rhetorical question" which is stated by the teacher who is not actually expecting the learner to respond. For example "Why is nobody sounding out the words?" This type of question was observed as being part of a discipline strategy adopted by the teacher when she notices that the learners are not focusing on the lesson at hand. Consequently it was important to note if rhetorical questions were part of the teaching mode.

"Learner responses" was divided into three areas of analysis namely: What the learner knows; What the learner does not know; and What questions the learner asks to show what she does or does not know. The purpose behind this section was to determine whether the teacher is aware of what the learner knows; whether the teacher responds to the leaner's questions and whether the teacher allows for any questions on the part of the learner. The video footage revealed that frequently learners in Grade One were encouraged to respond to questions in unison which made it difficult to determine what individual learners might know or might be struggling to understand. This would make it potentially difficult for the teacher to determine the individual ZPD of the learner and adjust her teaching accordingly. Learners were generally not encouraged to ask questions but rather to answer the questions posed by the teacher. The types of questions that learners did ask tended to revolve around problems with planning a given task or what stationary the learner was meant to use for a particular activity. Only one teacher Mrs A. at school 4 appeared to actively encourage her learners to

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ask questions and was prepared to restructure her lesson in order to accommodate a learner's question. An example of this was observed during a listening comprehension in which a learner wanted to know what a "raven" was. Extract 1 below is a transcript of this incident.

Extract 1: *Raven lesson.*

Context: This incident took place as a result of a "listening comprehension" in which the word "raven" came up and a learner wanted to know what a raven was. The teacher asked the learner if he was able to wait until she had finished and then she would address how to find out what it was. What is remarkable about this incident is that the teacher took the time to address the learner's question and used it as an exercise in how to use the dictionary. The use of the dictionary was then built on the next day when she got the learners to use their desktop dictionaries to locate suitable words for their story-writing exercise.

T: I want to ask you a question. Do you perhaps know what a raven is? What do you think a raven is? (pause whilst teacher gives learner a chance to respond but learner seems not to know) Got no idea? Ok, (learner's name) what do you think a raven is?
L: A raven is a black bird.
T: A raven is a black bird. (affirming learner's answer) Ok, ….
L: It looks like an ugly duckling!
T: Yes and (learner's name) says it looks like an ugly duckling…(laughs). Ok, now this picture over here (leaner's name) ….I will leave this open later. It is not a very good picture of a raven okay. (learner's name) if you don't know what a raven is where can you look?
Learners: (answer collectively) In the dictionary.
T: Okay now we are going to check to see if the raven is in here. And maybe we will get a better picture. If not I will try later on the internet and we can see if we can pull out a picture of a raven for (learner's name) and the rest of you to see. But (learner's name) you are going to have to help me now. I've got our dictionary…Where am I going to find the letter "r"?
(brief interruption from someone bringing in a learner's lunch)
T: (learner's name) where in the dictionary do you think I am going to find …oh first of all what does the word "raven" begin with?
Learners: (answer collectively rolling the "r" sound) Rrrrrrrrrr.
T: Okay, So (learner's name) where will I find it?
L: In the "r" section.
T: Okay in the "r" section, but where. Am I going to look in the front, in the middle or towards the back?
L: The one by the "ssss", the one by the "s".

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T: Ok but in my dictionary where am I going to find it? (teacher holds big dictionary on the side so learners can see the pages). In the beginning , in the middle , towards the end. (teacher touches each section as she names it)
L: Towards the end (learner shouts out)
T: aa…I am waiting for (Learner's name)
L: Towards the middle?
T: Towards the middle. I think it is towards…from the middle towards the end. (teacher shows what she means by touching the pages of the dictionary). Okay so I am going to open up more or less in the middle (she actively does this) and I am by "M". So I need to know that I still need to go further back. So I am by "P", am I passed it (learner's name)? Am I passed it yet? (teacher pauses in a particular spot in the book and looks at the learner who asked the original question).
L: No
T: I am by "q", have I passed it yet?
Learners: No (responding collectively)
L: almost (learner who asked the question)
T: No, almost. Okay and I found a "r". so let's see if "raven" is in here for (learner's name). (teacher pages to the specific page) Oh yes…beautiful! There is a lovely picture as well. "A raven (learner's name) the dictionary says is a black bird that is similar….."
L: What is similar?
T: Wait…just first listen to everything. "but not larger than a crow and it has a hoarse cry". A "hoarse cry" (teacher lowers her voice to imitate a hoarse cry) is when your throat is sore and you are sick and that is "hoarse" okay. You don't normally speak like that. It is when your throat gets very, very thick okay. And this is a picture of a raven (teacher holds up book to show learners). Okay? I will also leave the dictionary open and you can have a look at it later on.
L: I saw a raven outside.
T: Did you see a raven?
L: Is that a snake? (learner looking at picture on opposite page)
T: It is a rattle snake yes. But we are going to leave that and whoever needs to see it later on can come and have a look at it. The peg is right there on the book where you need to find it.

Although the teacher opens this interlude with a rhetorical question, "Do you perhaps know what a raven is?", she goes on to use a guiding question of "What do you think a raven is?" This elicits a number of responses from the learners which demonstrates that she is drawing from the learner's existing knowledge before presenting new knowledge. Her next question of "If you don't know what a raven is, where can you look?", is another guiding question which allows her to determine what the learners know about sourcing knowledge.

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The fact that the class responds collectively that a dictionary is a good place to look, suggests that they have already established this fact and possibly made use of a dictionary in the past. Mrs A. goes on to guide the learners with questions about what the word "raven" starts with and where the letter "r" is placed in the dictionary. She actively encourages the learners to participate with statements like "You are going to have to help me now." and "Am I going to look in the front, the middle or the back?" In this way she raises the expectation that the learners must participate and she responds to their suggestions. This allows the learners to problem solve and to let the teacher know where the gaps are in their knowledge. It should be noted that seven of Mrs A.'s nine learners in the problem-solving test could already problem solve in test one. This suggests that she had already established a foundation of problem-solving skills with her learners at the time of testing.

"Assessment" in the coding schedule, was divided up into "dynamic"; "formal" and "informal". This allowed the researcher to determine the levels of assessment that were taking place. Both during the pilot study and the research period, little formal assessment was evident. However, this does not mean that it was not taking place, but rather that it was not observed. In discussions with the 14 teachers, it emerged that weekly tests on a Friday were a common practice. Only one teacher was observed and filmed doing a test with her learners. This was Mrs K. from School 3 who demonstrated a lesson that involved the learners first reciting their sight words from their flip file lists, followed immediately by a test on ten of the three-letter word list. The learners were required to mark each other's work and a reward was offered to the learner who got full marks. The researcher observed that a number of learners struggled to plan this activity; to keep up with the teacher and to write the words correctly; consequently, some of them resorted to "cheating" and simply copied the correct word into the blank space once the teacher had given the answers. One or two learners surreptitiously

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helped one another to write the answers. This suggests that the learners were unfamiliar with this method of assessment and had not consolidated their sight words.

On the coding schedule, "dynamic assessment"[20] was understood to be when the teacher actively assessed the learner during a lesson and adjusted her teaching to accommodate the needs of the learner when she had ascertained that the learner might not fully comprehend what was being taught. This type of assessment was also fairly rare because the general approach was to get learners to answer in unison, and teachers appeared reluctant to change their lesson structure. Dynamic assessment was most evident when the teacher was working with learners in small ability groups and a learner was struggling with reading a word or sentence. An example of this was Mrs M. who had a learner who could not decode the word "strong" in the sentence he was trying to read which was about a dog pulling its owner along. The teacher made use of questions such as "What can you see in the picture?"; "What is the dog doing to its owner?"; and "If it is pulling both of them, it is too…what?" In this way she was assessing the learner's existing knowledge and prompting him to use the picture to decode the word "strong" in the sentence. The learner did eventually succeed in reading the sentence correctly. The teacher was working in an ability group at the time of the incident and this meant that she was able to give individual attention and temporarily adjust her teaching to meet the needs of the learner.

Informal assessment on the coding schedule, was defined as the assessment that took place when the teacher was engaged in a collaborative class discussion and asking individual learners questions about, for example, a story or word or reading activity. The CAPS (2011, p. 11) curriculum requires Grade One teachers to make use of "shared reading" or "shared writing" and it was generally in this type of activity that informal assessment was observed.

[20] Dynamic Assessment in this thesis refers to the Vygotskian perspective of assessment within the ZPD which whilst similar to Feuerstinian (1981), it is clearly distinct.

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An example of this type of assessment was Ms B. from School 2, who the previous day had done a "picture walk" through a "big book"[21] and the learners had been required to tell her the story using only the pictures. She then read the story to the learners and the following day the class was engaged in a "shared writing" task in which they were required to recall the story, providing the teacher with sentences which were written onto the board and then read. The types of questions the teacher would ask included: "What was the name of the story?"; "What does the title tell us?"; "Is that what we are going to write?" In this way the teacher assessed what individual learners could remember about the story. This was followed by the class collectively reading each sentence as it was added to the text. When a learner struggled to recall the story or provide a sentence, the teacher would move onto another learner and ask him to assist the learner that was struggling. The teacher informed me that she kept a record of the learners that were struggling and made a point of involving them when the next "shared" writing session was held. Some teachers, such as Mrs F.K. and Mrs J. at School 2, kept a class list on a clip board and would make a mark next to a learner's name to indicate that there was something to do with the assessment of that learner that needed attention. In this way the teacher kept a record of informal assessment and was able to use the information to scaffold further learning.

"Mediation", which is at the heart of pedagogy, was divided into four components to establish a detailed understanding of what this meant. A lesson given by Mrs P. on rhyming words is used to illustrate mediation (Extract 2, below).

[21] A "big book" is a large format story book used for collaborative story-time.

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Extract 2: *Rhyming lesson by Mrs P.*

Context: Mrs P. in School 3 had revised some rhymes with the learners the previous day by using rhymes that were dedicated to each of the alphabet letters. In this lesson she started with a rhyme for the letter "f".

L: "f" is for fire; "f" is for fish; "f" is for frog on my dish. (recited in unison)

T: Now which two words rhyme? Umm…err…(learner's name)

L: Fish and dish.

T: Fish and dish. (teacher turns over flip file with rhymes in them and continues to hold up the book in front of the learners as she reads the rhyme with the learners) Right, now let us say this one. (Teacher turns the page and points to the rhyme for "g"). "G" is for girl; "g" is for goat; "g" is for goose in my boat. (learners shout the rhyme in unison) Let us all say "goose".

L: goose (in unison)

T: again

L: goose

T: again

L: goose

T: "G" is for girl; "g" is for goat; "g" is for goose in my boat. (learners shout the rhyme in unison) Let us all say "goose". In my boat….

L: In my boat (learners in unison)

T: Right (learner's name) which words rhyme?

L: goose and….goat.

T: Listen, listen…goose…goat (touches her ear to indicate listening) It doesn't sound right. (points to another learner with their hand up) Yes, my boy.

L: girl and goose

T: Girl…goose…it begins with the same sound but…(points to another learner with their hand up).

L: Girl and goose

T: (teacher shakes her head)

L: (learners start shouting out)

T: No, no, no…I ask only the children who sit flat and sit nice down. (Learner's name) you may answer.

L: Girl and goose.

T: No, Let us say it once more. Once more and watch me.

L: Goat and boat (learner shouts out the answer)

T: that's right…goat and boat. (teacher points to the two words on the page) All say them.

L: Goat boat

T: again

L: Goat boat

T: It sounds that same. That rhymes. Those words rhyme.

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The first aspect of mediation that was addressed was "definition of a concept" which was understood when the teacher gave a phrase or word that would clearly define what concept she wished to convey to the learners. This was seen with Mrs P. when she described rhyming words as "sounding the same". She then went on to read a rhyme to the learners and asked them to identify which words rhymed. The learners struggled to do this with the second rhyme and she prompted the learners to listen to the words that they had suggested such as "girl and goose". Once they had identified the correct rhyming words, Mrs P. repeated the phrase a few times. It is interesting to note how the learners were required to repeat the rhyming phrases "fish dish" and "goat boat" to reinforce the rhyme.

Secondly, in "explanation of a scientific concept" (*sensu* Vygotsky, 1978), it was evident when Mrs P., in Extract 3 helped the learners to understand that rhyming words must sound the same, but they may not necessarily look the same. This is established through the game of identifying the "odd-one-out" in a list of words on the smart board. The learners were called up to circle the odd one out and when the teacher gave the words "pear, apple, bear, fair", the learners struggled to identify the odd one out and to understand why "fair" is part of the list of words from the "ear" family.

Extract 3: *Mrs P. illustrating a concept with rhyming words and a smart-board.*

Context: After reading a story of rhyming words, helping learners to connect rhyming pictures, Mrs P. then had lists of rhyming words written on the smart-board. The learners were required to identify the rhyming words and the odd one out.

T: Now we see the actual words (referring to the list of words on the smart-board) Now there we see the first row, those are the black words. (each row of rhyming words has been written in a different colour to identify the different word families) Let us read these words. I read first and then you listen. There is one word that is the odd word. Did you hear what I said? (goes up to a learner who is not focusing).
L: The odd word (learners repeat in unison)
T: Which one does not belong there? I am going to read. "Man, red, pan, can." "Man, red, pan, can". Now which one is the odd one out.

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L: Red. (in unison)
T: So "red" is the odd one out. (teacher puts a circle around the word "red") Good. I read the next row, "hug, rug, jet, jug".
L: Jet. (in unison)
T: Which one? Jet. Which one is odd? "Fox, mix, fix, six."
L: Fix (in unison)
L: Fox (in unison)
T: Let us all read it together…come. "Fox, mix, fix, six." Which one.
L: Fox (in unison)
L: Fix (in unison)
T: Some said "fox" and some said "fix". Now listen (teacher points to the words) "six, mix, fix". Say that now. "six, mix, fix".
L: Six, mix, fix. (in unison)
T: Again…
L: Six, mix, fix. (in unison)
T: Now say that one, "fox".
L: Fox (in unison)
T: Again, "fox".
L: Fox (in unison)
T: Which one does not sound the same?
L: Fox. (in unison)
T: (circles "fox") Fox doesn't belong here. Right (learner's name), will you come and ring the odd one in this one? Come (learner's name) "jam, jug, pram, dam".
(learner comes up to smart board)
T: Which one do you think is the odd one? "Jam, jug, pram, dam." "jam, jug, pram, dam". Which one is odd? (teacher points to each word as she says it with emphasis).
(learner rings the word "jug")
T: Right, good, thank you.
T: (calls up another learner to do the next one) Will you look for the odd one in the next one. I am going to read – "pan, bee, see, tree". "pan, bee, see, tree". Circle the odd one.
L: "pan" miss.
T: That is good. The next word… "pear, apple, bear, fair". Look at all four words. "pear, apple, bear, fair". Which one..come (points to another learner) (learner circles "bear")
T: Now listen again…"pear, apple, bear, fair". Notice the word family. It is the "ear" family. Now who does not belong in this "ear" family. Listen again, "pear, apple, bear, fair".
L: Apple (individual learners shout this out)
(teacher cleans circle around the word "bear" but then the smart board malfunctions and she has to pause to re-establish the lesson)
T: Is there another word that looks like it do not belong? Close your eyes. I say "pear, bear, fair". Listen, don't shout out.

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L: Pear
T: Don't look at it, you must just listen.
L: Fair (in unison)
T: Now "fair" doesn't belong actually to that family, but you know its name sounds the same. Do you know sometimes you have in your family somebody who just look a little bit different in the family but they still belong to the "ear" family. If you close your eyes and you listen to him, but if you open your eyes, then you say oh no he looks different. He is fine for rhyming words, for rhyming words that "fair" belongs there. Now we say "rhyming words". Say "rhyming words".
L: Rhyming words (in unison)
T: Rhyming words, "pear, bear and fair" will be one family because when we listen to it they sound the same, but if we open our eyes then it doesn't and we say "no, no, no, you don't belong to this family, you belong next door." You have a different spelling, hey?

Mrs P. made extensive use of repetition and encouraged the learners to listen to the words to help them to hear the rhyming patterns. She built on her previous lesson in which she explained that the words must "sound the same". In her explanation from Extract 3 (p. 175), she drew the analogy between the word family and the learner's own family and in this way she endeavoured to give the learners something that they could relate to.

Thirdly, in "concrete consolidation", the rhyming words were reinforced through a combination of getting learners to circle the rhyming words on the smart-board, reciting the rhyme "Humpty Dumpty", identifying rhyming words in a story, and finally asking learners to isolate the rhyming words from a list on a worksheet. In this way the learners were afforded the opportunity to practice their use and understanding of rhyming words.

The "language of mediation" on the coding schedule, refers to the type of language the teacher uses to establish the concept she is teaching. For example, "Listen, listen carefully…goose, goat. It doesn't sound right." And "If it sounds the same, these words are rhyming." (pointing to two rhyming words on the smart-board). Here Mrs P. is asking the learners to listen to the two words and hear that they are not rhyming words. She is giving the learners the clue that understanding rhyming words involves listening and recognizing when a

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word sounds the same. The language of mediation is guiding the learner with clues to understand rhyming words.

The last section of each pedagogic mode addresses how developmentally appropriate the class activities are. The first portion looks at the types of activities that take place and whether they are assisted or unassisted. For example, Mrs F. gave a lesson in which the learners were required to read to one another while sitting in groups at the table. She walked around to see if they were able to perform the task and if the group leader was guiding her peers to each take it in turn to read. This activity was both assisted and unassisted. It was assisted in that the teacher was monitoring the activity and was prepared to step in when support was required, but unassisted in that the group leader was required to guide his peers. This is described as unassisted because the group leaders were not able to guide their peers, seemed confused by what was expected of them and, as a result, the learners were simply reading to themselves or playing with their books. This suggested that the learners were not familiar with this type of activity and still needed scaffolding before they could successfully work in groups.

"Task orientation 1" in the coding schedule, centred around goal setting. Here the researcher was looking to see if the teacher set goals for the learners as a class or individually. Generally, little goal setting was evident over the research period. In the interview process it was revealed that teachers considered it difficult to set individual goals as they felt they did not have the time to do so. Goal setting was largely seen in connection with problem learners who were struggling to complete a task. For example, Mrs A. had a learner who was given the incentive of extra break time if he completed his task at the time that the bell rang. Ms S. had a learner who had academic difficulties so she gave him only three of the five sentences to write. After each sentence she would check his work and ascertain if he was completing the task correctly. He had to complete the three sentences before he was allowed out to break.

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Some teachers set individual goals for problem learners by means of their homework. Extra work was sent home and required to be completed by a set date. Parents were usually involved in this type of arrangement and the learner response was monitored. This approach was alluded to by ten teachers (71%).

"Task orientation 2" addressed the issue of behavioural regulation. During the interview process it became clear that teachers frequently answered the question of goal setting in terms of managing behavioural difficulties in the classroom. For this reason it was felt that it was important to analyse how much of this was taking place in teaching time. It is fairly common in Grade One for teachers to have "star charts", sweeties, stickers and "smiley faces" as rewards for work well done or to encourage problem learners. Some teachers would suggest a verbal encouragement before handing out an activity, but the researcher did not at any stage see a learner receive a reward or place a star on a star chart. This suggests that, generally, the development of emotional intelligence skills was not considered a priority. The interviews revealed that the teachers seemed to feel that learners are emotionally and socially immature and consequently they spent a good portion of each lesson controlling and disciplining their learners. For example, Mrs G. at School 1 made statements such as "I am waiting (learner"s name)!"; "Come now!" "Sit there…on your spot there.", "You don't normally sit there.", "Err…thank you…playing time is done, finished now, over." The teacher is trying to control the behaviour of her learners by placing them in specific spaces on the carpet and requiring them to sit quietly ready for her instruction. This type of physical arranging of learners was seen in 11 teachers (79%).

"Response to support", in the coding schedule, looked at whether learners accepted or rejected the mediation that they were receiving. For example, Mrs J. at School 2 did a lesson revising the "word families" and learners were required to recall the different word families and then make sentences using the words. The researcher noted that some of the learners

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understood the word families and were able to work with them, while others got mixed up with the different sounds for "i" and the teacher had to take time to mediate this further. In the same lesson, the film footage showed that some learners were still confused by "b" and "d" and needed support. Some learners accepted the revision of the two letters, while others became restless and wanted to move onto the writing task.

It should be noted that all of the above 18 sub-categories in the coding schedule were applied to all ten pedagogic modes, or a total of 180 subcategories, thereby providing for a detailed analysis of each lesson.

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Table 14: *Mode use per teacher. Mode use was scored from 10 (most used) to 1 (least used). If fewer than 10 modes were used, the unused modes were scored zero.*

Teacher	Mode 1: Use of existing know-ledge	Mode 2: Practis-ing a concept	Mode 3: Collabora-tive learning	Mode 4: Con-scious mediation	Mode 5: Didactic teaching	Mode 6: Ability groups	Mode 7: Scaf-folding	Mode 8: Work-sheets	Mode 9: Rote learning	Mode 10: Use of ZPD	Total number of modes used (maximum possible: 10)
Teacher 1: Mrs G.	10	8	9	7	3	2	6	5	1	4	**10**
Teacher 2: Mrs D.J.	8	10	7	9	0	0	6	5	0	4	**7**
Teacher 3: Mrs M.	10	8	9	7	0	4	6	5	0	3	**8**
Teacher 4: Ms B.	9	8	10	7	3	4	6	0	5	0	**8**
Teacher 5: Mrs A.	9	5	6	10	4	0	7	3	0	8	**8**
Teacher 6: Mrs F.	10	9	7	8	2	5	6	0	4	3	**9**
Teacher 7: Mrs J.	10	9	7	8	0	5	6	4	0	3	**8**
Teacher 8: Mrs F.K.	9	10	5	8	0	4	7	2	3	6	**9**
Teacher 9: Mrs K.	9	8	7	10	2	4	3	6	5	0	**9**
Teacher 10: Mrs P.	9	8	10	7	3	4	6	0	5	0	**8**
Teacher 11: Mrs V.R.	9	10	8	7	0	6	5	2	3	4	**9**
Teacher 12: Mrs H.	10	8	7	9	4	2	5	6	0	3	**9**
Teacher 13: Mrs R.	10	9	6	8	0	7	4	0	0	5	**7**
Teacher 14: Ms S.	9	5	10	7	0	0	6	8	0	0	**6**
Total scores per mode (minimum possible: 0; maximum possible: 140)	**131**	**115**	**108**	**112**	**21**	**47**	**79**	**46**	**26**	**43**	**Average # modes per teacher: 8.2**

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Mode use per teacher was scored (Table 14, p. 181). Each teacher was analysed in terms of the frequency of her use of each pedagogic mode. For each teacher, the mode most frequently used was given a score of 10, the second most used, a score of nine, and so on, to a minimum score of one for the least used or zero where a mode was not used at all (Table 14, p. 181). This was done to assess the relative importance of the different modes. The scores allocated for a particular mode, per teacher were added together and the totals compared (Table 14, p. 181, Figure 15, p. 189).

Mrs P., who scored the most significant learner result for reading, had a preference for collaborative learning, with worksheet-based learning and use of the ZPD as her minimum modes. Her lack of addressing individual ZPDs can be seen in Extracts 2 and 3 where most of the learner responses were "in unison", meaning that she did not appear to encourage individual leaners to respond. This would have resulted in her not being able to determine the individual needs of her learners. Extract 4, below, shows how she conducted collaborative learning. This style of collaborative learning was common across all five schools and all 14 teachers.

Extract 4: *Transcript of Mrs P.'s collaborative learning lesson, part 2.*

Context: Mrs P. began the lesson with discussing the title, cover, author and illustrator of a story before reading a story to the class. The story was a rhyming book whereby the end of each sentence rhymed with the previous sentence. She then discussed which words rhymed in the story and then went on to reading a second story of a similar nature.

T: We are going to do a bit of rhyming words with a little bit of shared reading. Now pay attention. Pay attention (learner's name). We first clap hands come…(clapped hands with class and they copied her) focus now, look at me, pay attention and sit still. The title of this little book…who can tell me or read the title of this little book? Yes (points to a learner).
L: Dots…
T: Yes (points to another learner)
L: Dolly Dots.

T: Yes. All say "Dolly dots".
L: Dolly dots (learners say in unison)
T: Now why do you think they call this little girl "Dolly dot"?
L: She has dotted clothes, dotted toys.
T: Yes..what else? Now why do you think she had dotted clothes and dotted toys?
L: Because she likes dots.
T: Because she likes dots. And the person who writes the story…what do we call the person who writes the story?
L: Author.
T: Right. All say "the author", come.
L: The author (in unison)
T: Again
L: The author (in unison)
T: Then there is the person who does the drawings of the story. All these beautiful drawings (teacher indicates the front cover of the book) and that person we call the "Ill-u-stra-tor". Come…
L: Illustrator (in unison)
T: Now this little book is about pattern and rhyme. And you know a pattern is about something that repeats and repeats. (teacher turns to a display of words on the wall behind her to show the learners a pattern in words) There is a pattern. Let us say it come.
L: Hot cold, hot, cold, hot cold. (in unison)
T: Read the colours come
L: Orange blue, orange blue, orange blue. (in unison)
T: Let us read one of our writing patterns..come
L: Down up, down up, down up (learners and teacher make a down and up movement with their arms)
T: Now this little rhyming book is also like a little pattern. It is a repetition. And you must listen to the rhyming words.
Teacher then reads the story to the learners.
T: What is a little tot?
L: A small child
T: A little small child (makes a size shape with her fingers to indicate something small) and she slept in this great big cot (emphasized the words "great big cot" and made a large size with her arms.)
(teacher re-read story and again asked the learners to listen for the rhyming words)
T: A word that rhymes with "dot" in this book?
L: Pot
T: "Pot" right. Another word that rhymes with "dot" and "pot" in this book?
L: Got
T: She slept in a …?

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L: Cot (answered in unison)
T: And she wanted her..?
L: Pot (answered in unison)
T: Those are the rhyming words. And those words belong to the "ot" family.

In the above excerpt Mrs P. begins by introducing what the lesson is going to be about. This was not a common occurrence when observing the 14 teachers in action. She then engages the learners in a discussion that centres around the cover of the book, author and illustrator. Most of her questions in this transcript are guiding questions in which she is trying to get the learners to recall and identify the rhyming words or to think about why the main character is called "Dolly dot". She does have two knowledge-based 1 questions namely "What do we call the person who writes the story?" and " …there is a person who does the drawings of the story…and that person we call?" It should be noted that Mrs P. makes extensive use of repetition of the story, learner responses and requiring learners to repeat any new vocabulary such as "author" and "illustrator". She was a teacher who appeared aware of her learners needing a time-out to refocus and made use of clapping games; songs; rhymes and physical movement such as marching, as a means of getting the learners to regain their focus or to settle down at the initial stages of the lesson. This can be seen in Extract 4, (p. 182) when she first gets the learners to clap their hands and copy her movements. Eight of the 17 learner responses in Extract 4 were individual responses with nine being "in unison". This suggests that Mrs P. favours a collective response from her learners but is making some space for individual responses.

Mrs H. who scored the most significant learner result for the comprehension test, has a preference for use of existing knowledge with rote learning as her minimum mode of pedagogic

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practice. In Extract 5 below Mrs H. is making use of the smart board as her means of getting her learners to recall the labels for "the body" in Afrikaans.

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Extract 5: *Mrs H.'s use of existing knowledge in Afrikaans lesson*[22]*.*

Context: Mrs H. began the lesson by using a big book and getting the learners to read with her in Afrikaans. She then went on to use the smart-board and to call up individual learners to identify and label the various body parts. Finally the learners made use of a worksheet to build a body in their work books.

T: We are going to stop talking now. We are waiting for (learner's name) to sit down. Please put your juice bottle away. Come out of the corner and we are not shouting out. Right (teacher holds up the "big book" and points to the words as the class collectively reads the book with her.
L: Look at me(class reads the sentence in unison)
T: What does that mean…hands up?
L: Look at me.
T: Look at me.
L: Look at my ball(in unison)
T: Who is shouting out?
L:Look how we are playing.
T: Look how we are playing. Ok let's do this one. (teacher sets up the smart board with labels and an image of a person. What is this? What is this? (teacher points to the different body parts as she asks the questions).
L:It is my finger. (in unison)
(teacher puts up a finger)
T:What is this?
L:It is my leg. (in unison)
T: Good. What is this?
L:It is my foot. (in unison)
T:What is this?
L:It is my head. (in unison)
T:What is this?
L:It is my arm. (in unison)
T:Show me your finger. Where is your finger? This is my…(waggles her index finger)
(learners touch their fingers.)
T:Show me your leg.
(learners touch their leg)
T:Show me your foot.
(learners touch their feet)

[22] All Afrikaans has been translated into English. Original transcript in Appendix pg. 246.

T: Now let us see who is behaving very nicely. (learner's name) go label that man and put the word "Head" next to the "Head".
(learner comes to the front of the class)
T: Pick up the word "head". Hang on you haven't got it. Click on it. Drag it up. Put it just next to the arrow there so you can see it. (learner can't reach so teacher does it for her)
T: Thank you. (teacher chooses another learner) Go put the word "Leg" next to the body. Where is "Leg"? (learner struggles to reach label) Put is next to the arrow. Here…(teacher drags it to the label learner is trying to reach).
(Teacher continued to call up learners to label the body parts on the smart board. Most learners easily identified the correct label for each body part but they struggled to use the smart board.)

Mrs H. drew from the learner's existing knowledge when asking them to label the body parts of the man on a smart board. She made use of individual learners who were called up to drag the label to the correct body part. The learners were familiar with the Afrikaans names and were able to perform this task easily. The difficulty was more to do with the problems of using the smart-board and the learners being too short to reach the board and drag the label. Like many of the teachers in this research project, Mrs H. made extensive use of learners answering in unison. In Extract 5 (p. 185), this is evident in the naming of the body parts. Mrs H. was, however, drawing from the learners' existing knowledge in that she required them to touch their bodies and used individual learners to label the drawing on the smart-board.

Ms D.J., who scored the most significant result for problem solving, favoured practising a concept. She made less use of ability groups, didactic and rote learning. In Extract 6, below, we can see how she gave the learners plenty of opportunity to practise reading and interpret a story. The extract shows that she had ten guiding questions that she posed to the learners. For example, "Why would you say it looks like he is shocked?'; "Why new trainers?"; "What do you think he could be wearing instead of wearing his new trainers?" In this way she facilitated the development of problem-solving skills through requiring her learners to think something through

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and come up with a solution. Furthermore, she provided reminders to the learners that they must "look at the words" when reading and then she tested this by requiring them to read the rest of the book without her guidance first. By doing so, she allowed the learners the opportunity to practise their reading. It should be noted that, aside from the discussion elements of this lesson, the reading was all done in unison.

Extract 6: *Ms D.J. promoting problem-solving skills with collaborative learning.*

Context: Ms D.J. was conducting a lesson using a "Big Book" and requiring the learners to first look for clues to understand the story before reading it.
T: Just looking at the front cover, what can we tell from this picture? What do you see in the picture love? (referring to a learner in the front)
L: I see the boy playing.
T: Right, any more information?
L: His friend is saying "pass the ball to me".
T: Shoo! I love these ideas. We are really using our imaginations.
L: It looks like he is shocked.
T: Why would you say it looks like he is shocked?
L: Because his mouth is open.
T: So he is showing a certain facial expression that looks like he is a bit shocked. Can all of you show me a shocked face? (learners proceed to do so). Right…lets read this book and see what happens. What we are going to do…like we did yesterday…I am going to read it first once and then we are going to read it together as a group. (teacher opens the book). I am going to read first and then we read together.
T: Chip wanted new trainers (teacher reads the sentence and points to each word as she reads)
L: (learners read collectively) Chip wanted new trainers.
T: Why new trainers?(learner's name)
L: He wanted new shoes.
T: High-heels? Soccer boots? (class laughs)
T: You're right, they are new shoes, but I want you to be a little bit more specific. (points to another learner)
L: Takkies.
T: Takkies. Teacher turns page of big book
T: Listen first… He liked this pair.
L: (read collectively) He liked this pair. (Teacher holds up book and shows it to the learners.)
T: Look with your eyes and not with your mouths. (warning restless learners who are starting to talk)

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T: (turns page and starts to read again) Chip wore the new trainers.
L: (read collectively) Chip wore the new trainers. (teacher points to words as class reads)
T: (turns page) Let me read first just to remind you…Chip went to play. (points to words as she reads)
L: (read collectively) Chip went to play.
T: Now remember when we are reading we need to actually look at the words….when you read…okay? Now we are going to read together and for the first time I won't read it first. (teacher is holding up the book as she is talking). Some guys are just copying by memory but actually when we read, it is very important that we look at the words and we read the words.
L: The trainers got muddy (learners read collectively with teacher pointing to the words but not reading herself)
T: Very good.
Teacher turns the page and learners read together again.
L: The trainers got wet (learners read together as class)
T: Oh my word! What shoes do you think he could be wearing instead of wearing his new trainers? What shoes do you think he could wear instead to avoid the new trainers getting muddy and wet? I am going to ask…(learner's name).
L: Rain boots.
T: Rain boots. Who here has a pair of gumboots or rain-boots? (learners put up their hands) Right let's go. (teacher turns page to prompt learners to read again)
L: (read collectively) Dad was cross.
T: How do you know that….how do you know from this picture that Dad was cross? It says that. The words say that but do we really believe it?
L: Because of his face.
T: Because of his face. What is happening with his face?
L: He looks angry.
T: How do you know that he is looking angry? What is he doing with his face?
L: He is making his face puffy.
T: He is making his face puffy. Okay (learner's name)?
L: His trainers are wet and dirty.
T: Yes we are talking about how we know the dad is cross. That is why he is cross…correct. But how do we know the dad is cross?
L: Because the dad is pointing at chip and making like this (learner shows a scowling face).
T: I want to see a cross face.
(leaners make a cross face)
T: Like your baby brother or sister has just broken a beautiful puzzle that you have just made. (teacher pulls a cross face too and learners laugh)

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T: Right thank you. Focus again. (teacher turns page to resume reading) Oh my word so what did chip do guys? (shows the learners the picture of the little boy sitting on the step washing his new trainers).
L: (read collectively) Chip washed the trainers. (teacher points to each word as learners read).
T: What did he use to wash the trainers?
L: A sponge and washing up liquid.
(teacher nods)
T: Who of you have ever washed your shoes or takkies or trainers before?
(learners put up their hands)
T: Right lets go. (teacher points to the last page for learners to read)
L: (read collectively) Oh! No!
(teacher puts her hand over her mouth as if shocked. The book shoes Dad stepping into wet cement).
T: Why are we saying "Oh! No!"? (learner's name) hand shot up there!
L: Because Dad's shoes are full of cement.
T: Now remind me…how do we know that those are Dad's new shoes?
L: Because those shoes are shiny and his old shoes were light brown.
T: Hey you remembered before we even discussed it.

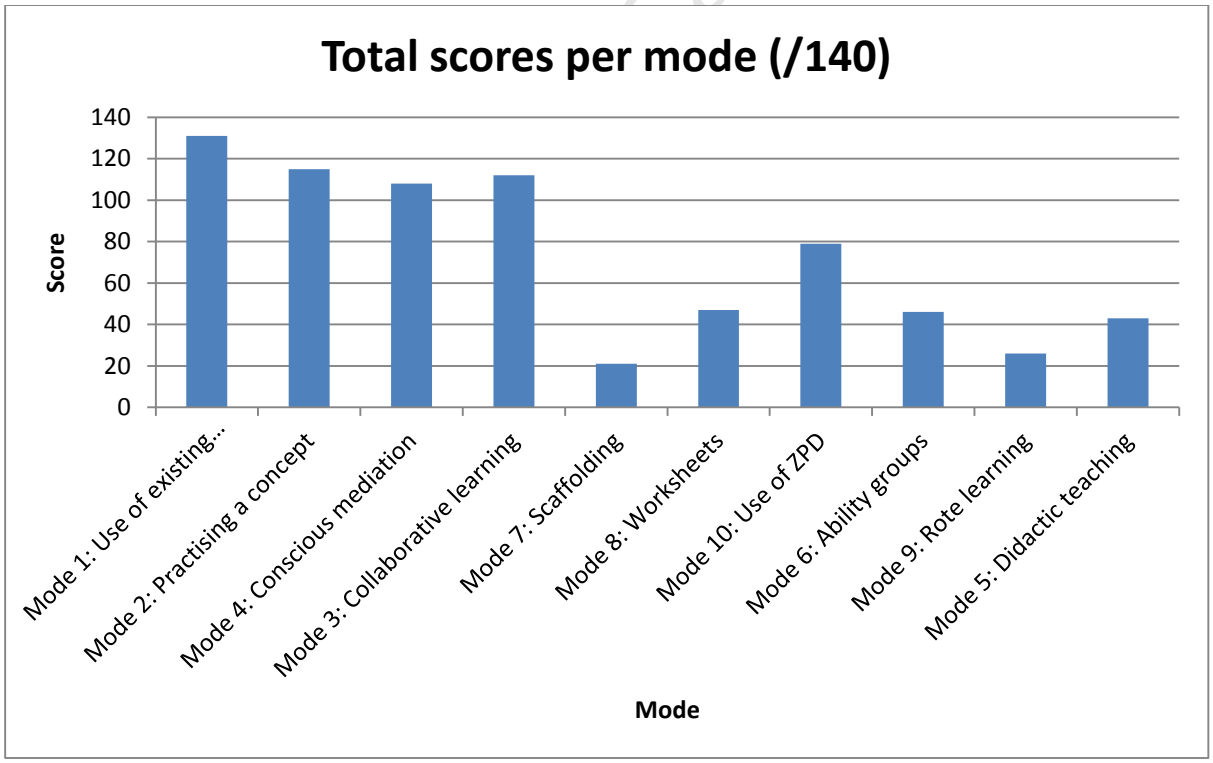

Figure 15: Relative use of pedagogic modes. Scores out of 140.

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The four modes that scored highest in terms of frequency of use were: use of existing knowledge, practicing a concept, conscious mediation, and collaborative learning (Table 14, p. 181, Figure 15, p. 189). For six teachers (43%), use of existing knowledge was the most used mode, while practicing a concept and collaborative learning were used most by three teachers, respectively. These were not, however, the same three teachers in each instance (Table 14, p. 181). Conscious mediation was used most by two teachers (14%). Use of existing knowledge was the most dominant mode of pedagogy in the sample of 14 teachers (Table 14, p. 181, Figure 15, p. 189).

The top four modes are all drawn from a Vygotskian framework. It should be noted however that, although collaborative learning was in the top four modes used it was not executed in the purest Vygotskian form. This will be addressed in the following chapter. The use of the ZPD is in the bottom four modes, while scaffolded learning was in the top five modes. This suggests that teachers were scaffolding learning to a collective group, but rarely for individuals. Furthermore, despite use of existing knowledge being the primary mode used, it did not link to ZPD, which suggests that, although teachers were drawing from learner's existing knowledge, this pertained to group discussion and not as a means of establishing a base line of knowledge with a view to realising individual learners' potential.

Rote learning was used the least by six teachers (43%). Mrs P. and Mrs K. used it the most often (Table 14, p. 181) and were in first and second place with reading results for their learners (Table 4, p. 138). This suggests that rote learning has an important role to play in acquisition of early reading competencies. Didactic mode was used the least by eight teachers (57%). This could be expected given that, in foundation phase, teaching is generally more interactive and less of the "lecture" sort. The ability-group mode, use of ZPD and use of worksheets, were used least

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by five teachers (36%) each. This indicates that, although teachers were making use of these methods of teaching, they were not their dominant choice. It should be noted that some potential use of worksheets has been replaced by the CAPS workbooks. It should also be noted that, when use of the ZPD did take place on an individual basis, it was largely in the context of ability groups.

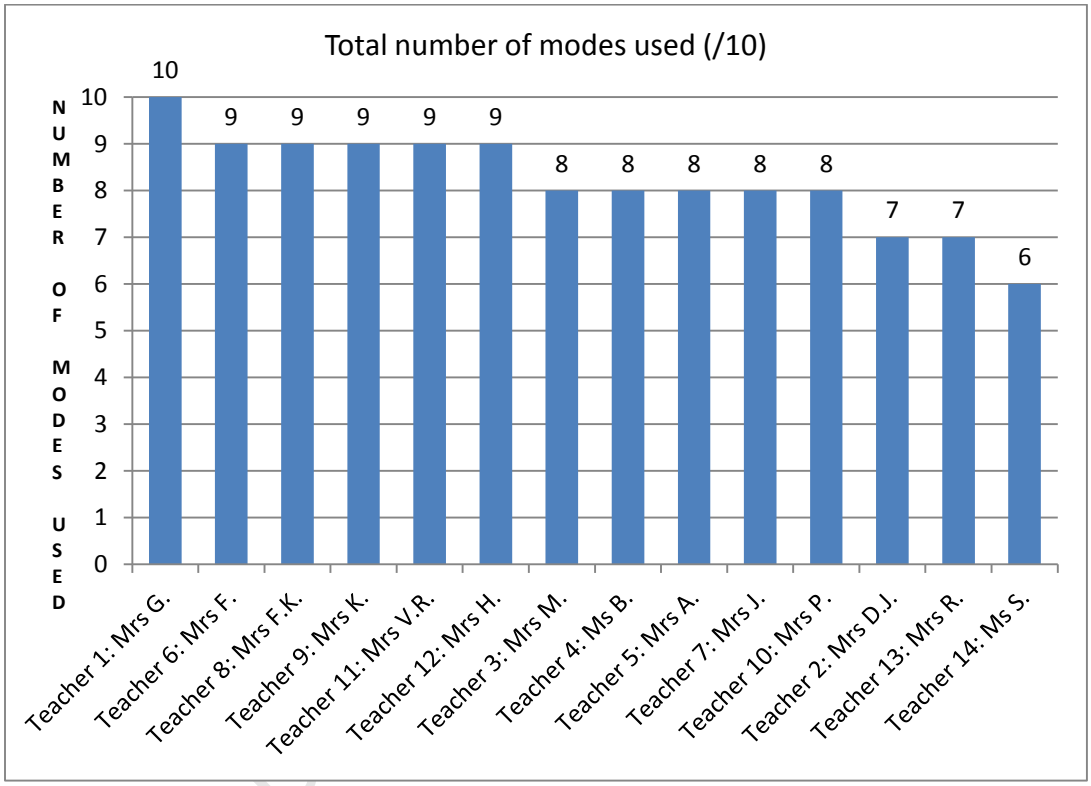

Figure 16: Number of pedagogic modes used, per teacher. Average number was 8.2.

The number of modes used by each teacher was calculated (Figure 16). Mrs G. from School 1 made use of all 10 modes, which was not surprising since she was a teacher with 27 years of experience and well-developed skills. Ms S. who used only six modes, was a first-year teacher and therefore still developing her suite of teaching skills. Five teachers (36%) made use of nine modes and all of them, barring one (Mrs H.), were teachers with more than ten years of

teaching experience behind them. Mrs H., who also used nine modes, was a second-year teacher who, during her interviews, displayed an interest in remedial education. She was the most enthusiastic user of technology in the classroom. Five teachers (36%) used eight of the modes, including Mrs P. who scored the best result in learner reading tests. Two teachers (14%) made use of seven of the modes and no teacher used fewer than six. It is interesting to note that Ms D.J., who scored the best problem-solving results, made use of only seven modes. It is evident that, generally, the teachers made use of a wide variety of modes, which could be expected as most of the teachers had a number of years of experience behind them.

An integrative, principle component analysis was done to compare teachers with respect to the frequency with which they employed each of the ten pedagogic modes (Figure 17, below). Most teachers were clustered close together at the intersection of the mode axes, indicating a similarity in their frequency of use of the modes. Five teachers could be described as outliers with their own unique pedagogic profiles (viz. Mrs A., Ms B., Ms S., Mrs F.K. and Mrs D.J.; Figure 17). For example, Mrs A. (on the far left in Figure 17) had a much higher than average use of ZPD, practicing of a concept, didactic teaching, use of existing knowledge, conscious mediation, scaffolding learning and collaborative learning, and is lowest on rote learning and ability groups. Mrs J. was situated at the intersection of the axes and was representative of the average. This analysis showed that pedagogic styles did differ among the teachers, despite the similarity in the number of modes that they used (Figure 16, p. 191) and identified which teachers stood out from the norm.

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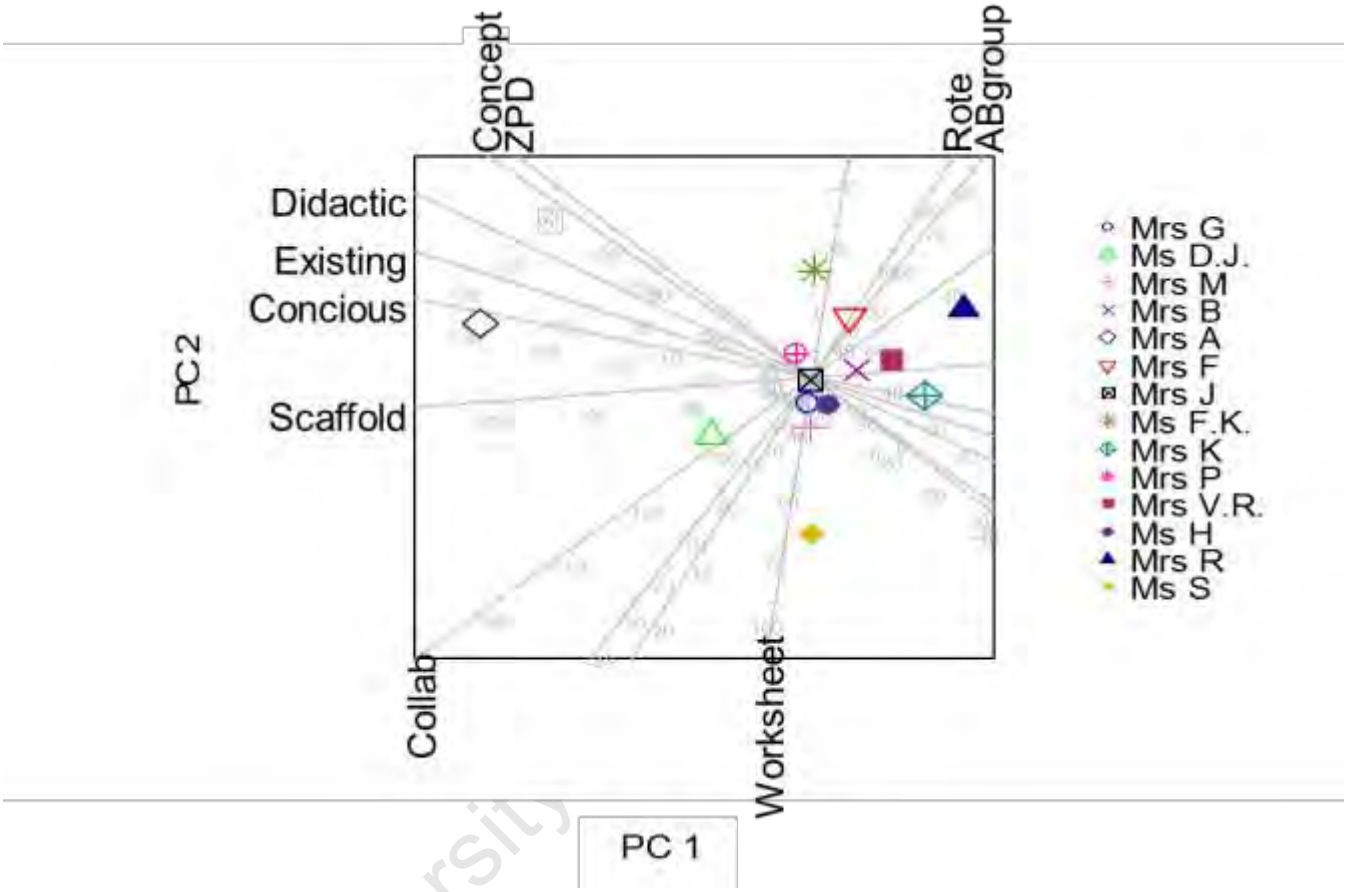

Figure 17: Mode use per teacher, based on the frequency with which each of the ten modes were used by each of the 14 teachers. Lines represent the modes and have 14 values per teacher, each of which is represented by a single point in space. The original values per mode can be read off per sample point by drawing a line from each point to the relevant mode line. Modes that are close together are more related than those in widely separated directions. Each symbol represents a teacher (brown square: Mrs R.; X in square: Mrs J.; black triangle: Ms S.; green triangle: Ms D.J.; inverted triangle: Mrs F.; orange diamond: Ms B.; open diamond: Mrs A.; cross in diamond: Mrs K.; black circle: Mrs H.; open circle: Mrs G.; cross in circle: Mrs P.; *: Mrs F.K.; +: Mrs M.; X: Mrs V.R.). Proportion of variance explained by the first two components: 45% and 20%, or 65% overall.

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5.3.2 Summary

The data reveal that teachers generally made use of a wide variety of pedagogic modes and that the top four modes were Vygotskian in nature. This does not mean, however, that they are pure Vygotskian, but rather an applied version of his theoretical framework. This highlights the difference between theory and practice, as well as the difficulties inherent in evaluating theory as it is practised. It is additionally interesting to note that the two teachers with the top reading results, namely Mrs P. and Mrs K., both made the most use of rote learning (Table 14, p. 181), which is a non-Vygotskian pedagogic mode. The minimal use of the ZPD, lack of goal setting and individual attention in general, appear to contradict the outcome that use of existing knowledge was the most dominant mode across all 14 teachers. Finally, it was shown that teachers' pedagogic profiles did vary significantly (Figure 17, p. 193), despite similarities in the number of pedagogic modes used (Figure 16, p. 191). These various aspects of the findings will be discussed further in the Discussion chapter. The following section addresses the data gathered from the two sets of interviews in order to establish the relationship between what teachers express and what they put into practise.

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5.4 Teacher data: analysis of interviews

Each of the 14 teachers was interviewed twice, once at the beginning of the research period and then again post research. The same questions were asked in both interviews and teachers were given the opportunity to express themselves on a variety of topics that were linked to the pedagogic modes that comprised the coding schedule. The questions from both sets of interviews were then collated and common themes extracted. This thematic approach to qualitative analysis provided a comprehensive picture of what teachers thought about such topics as "how children learn"; "using collaborative learning modes", "practicing a concept" and "scaffolding learning for a problem learner". The combination of the coding schedule which analysed the film footage, and the qualitative analysis of the teacher interviews, provided an opportunity to contrast what teachers say and what they actually do. The following section will detail a thematic description of the interview questions and responses.

5.4.1 How do you think children learn? In other words how do they acquire knowledge and skills?

This question was chosen because it was felt that at the heart of pedagogy should be an understanding of how children learn so as to best facilitate this process. It was interesting to note that seven teachers (50%) openly expressed their difficulty in answering the question with comments such as: "That is a question I have got to think about!"; "That is a tough question!"; "Give me some boosts here, what have the others said?" Some teachers had to pause and think for a few minutes before answering the question and during the second interview, some teachers

remembered the difficulties they had experienced when asked the first time, and expressed their difficulties in answering the second time around as well.

Table 15: *Responses to question: "How do children learn?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Children learn experientially.	7	Ms S., Mrs M., Mrs G., Ms D.J., Mrs P., Mrs K. & Ms B.
Children learn through their senses.	7	Mrs A., Mrs R., Mrs H., Ms D.J., Mrs P., Mrs F. & Ms B.
The home environment is important to how children learn.	6	Mrs A., Mrs V.R., Mrs R., Mrs G., Ms D.J. & Mrs K.
Children learn through concrete manipulation of objects.	6	Ms S., Ms D.J., Mrs P., Mrs K., Mrs F.K. & Ms B.
Children learn through play.	5	Mrs G., Ms D.J., Mrs P., Mrs F. & Mrs J.
Language is important to how children learn.	4	Mrs F., Mrs F.K., Ms B. & Ms S.
Children are individuals who learn differently from one another.	4	Mrs J., Mrs H., Mrs G. & Mrs M.
Children learn through the use of the smart-board.	4	Mrs K., Ms D.J., Mrs H. & Mrs F.
Children learn through social interaction.	4	Ms S., Mrs G., Mrs P. & Mrs M.
Children learn through practice/repetition.	4	Mrs A., Mrs F., Mrs M. & Ms D.J.
Children learn through storytelling and telling news.	3	Mrs F., Mrs H. & Mrs F.K.
Children learn through being challenged to think for themselves.	3	Mrs A., Mrs M. & Mrs V.R.
Children learn through class discussions.	2	Mrs V.R. & Ms D.J.
Children learn from modelling by teachers/peers.	2	Mrs K. & Mrs G.
Children learn by building on existing knowledge.	2	Ms S. & Mrs V.R.
Children learn when information is contextualized.	1	Mrs M.

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Children learn from validation. 1 Mrs G.

Note that teachers thought that learners learn most effectively through their senses; when they experience something; by manipulating concrete objects, and that the home environment plays a role in both what is brought to the classroom and how learning is consolidated from the classroom. A further point of interest is that only two teachers expressed that learners learn through discussion, and four teachers (29%) felt that language was important to learning. This is interesting because the coding schedules revealed that collaborative learning was one of the four modes that was used most often (previous section). In addition, only four teachers (29%) suggested that children learn through social interaction. Two teachers mentioned that children learn by building on existing knowledge. Validating the learner and contextualizing information were each considered important by only one teacher each. Five teachers (36%) mentioned various ways in which children might learn through play and considered this an important aspect to facilitating learning.

5.4.2 Have you ever made use of collaborative learning as a teaching style and if so, how?

This question yielded a strong negative response with teachers stating "It doesn't work for me in Grade One, especially at this stage."; "We don't really do collaborative learning."; "You can't really expect the kids to be at a mature enough level to be able to discuss issues." Two teachers (14%) expressed a level of comfort working in a collaborative manner. These were Mrs P. who got the best results from her learners in the reading test, and Ms S. who was in the third highest school for overall improvement in reading and comprehension. Mrs P. said "It is just in

me, because…I don't know…it works for me." Ms S. said "I like it because they do learn from each other." Note, however, that most teachers were engaged in some sort of collaborative learning on a daily basis (previous section).

The nature of the collaborative learning which according to Vygotsky's general genetic law should first take place 'within a social context', was generally discursive, with the learners sitting in the front of the classroom and the teacher guiding a class discussion around a story or picture (1978, p. 57). There was limited evidence of peer mediation and group work, with only two teachers filmed engaged in this type of pedagogic mode. In both instances the lessons were not successful because the learners were unsure what to do when working in a group and consequently resorted to disruptive behaviour or simply working on their own. This lead the researcher to surmise that the teachers may have put on this type of lesson for the benefit of the researcher and, secondly, that the teachers had not consciously mediated group work with their learners and would need to do so in order to succeed.

Table 16: *Responses to question: "Do you use collaborative learning, and if so, how?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Collaborative learning should be avoided.	8	Mrs H., Mrs G., Mrs F., Mrs R., Ms D.J., Mrs V.R., Mrs F.K. & Mrs K.
Teachers prefer to do collaborative learning later in year.	7	Mrs A., Ms B., Mrs F.K., Mrs V.R., Mrs F., Ms D.J. & Mrs M.
Grade Ones too emotionally and socially immature to work collaboratively.	6	Mrs A., Ms D.J., Mrs F.K., Mrs M., Mrs H.,& Mrs F.
Collaborative learning involves using mixed ability groups.	5	Mrs A., Ms D.J., Mrs F.K., Mrs K. & Ms S.
Collaborative learning is used for special projects a couple of times per term.	5	Mrs A., Mrs F.K., Mrs R., Ms D.J. & Mrs M.

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Teachers considered collaborative work problematic because of CAPS.	4	Ms B., Ms D..J, Mrs R. & Mrs M.
Collaborative learning was used to reinforce aspects of the basal reader.	4	Ms B., Mrs F.K., Ms S. & Ms D.J.
Teacher felt working in pairs was the maximum extent of collaborative learning.	3	Mrs A., Mrs M. & Mrs G.
Collaborative work was seen as meaning ability-group work mediated by the teacher.	3	Ms B., Mrs F. & Mrs J.
Collaborative learning is used in numeracy and working in pairs.	3	Mrs A., Mrs J. & Ms D.J.
Teachers prefer to do collaborative learning with the top group only.	2	Mrs A. & Ms B.
Collaborative learning is something the teacher is comfortable with and uses regularly.	1	Ms S.

Eight teachers (57%) expressed that they did not want to use collaborative learning, and their reasons ranged from considering the learners too socially and emotionally immature to effectively collaborate, to a perception that teachers did not know how to use collaborative learning as a teaching technique. For example, Mrs H. said "I suppose I don't really understand how you would teach literacy in a group situation. Maybe if I had some more ideas." Ms D.J. said "You can't expect the kids to be mature enough to be able to discuss issues." This was in contradiction to what she was doing, namely plenty of group discussion which appeared to evidence the best learner result in problem solving (see previous section).

Five teachers (36%) suggested that they used collaborative learning a couple of times a year and that it was usually linked to some sort of life-skills activity or special project. For example, Mrs K. said "We have done it with the trees outside..the art..where they built the tree in a group and where they had to make the leaves to stick on the tree." Seven teachers (50%) said they would prefer to use collaborative learning later in the year. The implication here was that Grade One learners would then be deemed sufficiently emotionally and socially competent.

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Only one teacher (7%), Ms S., used it daily and felt strongly that the more she used it, the more effective it was. The rationale for doing it daily was expressed by this teacher as "It seems to be working well for my class and it is nice for them to socialize." Noteworthy is the fact that Ms S., scored in the top four for learner results in the reading tests but did not score highly in either the comprehension or problem-solving tests. Four teachers (29%) said they found it difficult to do collaborative learning because the CAPS (2011) curriculum prevented them from finding the time for this type of learning. The suggestion was that collaborative learning was time consuming and unstructured.

Three teachers (21%) said that they used collaborative learning when doing problem solving in numeracy and that learners were placed in pairs to work through a story sum. It was, however, intimated that even when working in pairs, learners did not always know how to collaborate. For example, Mrs A. said "Some of them need to be guided more than others, but just your top group you can give something to and they go on with it."

Three teachers (21%) suggested that collaborative learning was taking place when they worked in their ability groups and that the teacher mediating in this situation was equivalent to group work. It should be noted that five teachers (36%) said that collaborative learning involves using mixed-ability learners collaborating with one another. This could not, therefore, be the case in a streamed-ability group mediated by the class teacher because, in the streamed groups, learners have been organized to be on the same level and this is the way in which all of the teachers in this research project indicated they had organized their learners.

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5.4.3. How would you teach problems solving skills in your classroom, by this I don't mean in the numerical sense but rather in terms of thinking and reasoning?

This question proved to be a challenge for seven teachers (50%) who appeared to never have considered the importance of developing "thinking and reasoning" skills. For example, "That is a question and a half!"; "I still need to reflect on this." and "You are making me think now…I am not sure." Mrs H. said, "We haven't really done a lot of problem solving in the work…I suppose anything that they cut out and stick is problem solving."

Six of the teachers (43%) immediately equated it with problem-solving sums in numeracy. For example, "I was actually thinking in terms of the numerical sense." An example from Ms B. is "I do it more in maths." This continued to be the reaction even in the second interview when teachers had already been made aware of the question related to promoting thinking and reasoning skills.

Seven teachers (50%) felt that it was easier to develop thinking and reasoning skills during story time when aspects of a story could be discussed. For example, Ms S. said, "I generally try and touch on that at least three times a week when I do my story." Ms D.J. said. "I did it today in the library when I did my story". Seven teachers (50%) suggested that it was important to begin by drawing from the learner's existing knowledge and then guiding the learner by means of questioning, to establish a solution. For example, "I throw questions at the learners". Some teachers emphatically stated that they do not want to answer endless questions posed by the learners and that they consciously redirect the learner with a view to developing a level of independence. For example, "I don't give them a straight answer any time… you know what you need to do… so just step back…" and "If I ask a question and a child answers me, I like to ask them "how did you get there?" It appeared however that many of the teachers were

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"unconscious" mediators who had not really thought about "thinking and reasoning" as an important skill.

Five teachers (36%) interpreted the question as meaning in a behavioural sense when a teacher had to mediate conflict. It was suggested that because Grade Ones are considered new to schooling, they are automatically seen as immature and behaviourally problematic. For example, Mrs P. said, "I don't do the problem solving like now because they are still like too young to understand how to solve their problems. But I think we must do it regularly then it will work." This type of response from the teacher was observed and resulted in the teacher having to engage in conflict management. The form that this would take usually involved the teacher taking the two offending parties to one side and then telling them what they should have done to avoid the problem in the first place. The teacher did not ask the learners to provide solutions to the problem but rather dictated what should have occurred if the learners were behaving appropriately. Although there was some evidence of a few Emotional Quotient (EQ) charts or "Feelings" icons evident in some classrooms, it did not however appear to be something that was actively addressed.

Table 17: *Responses to question: "How would you teach problem-solving skills in terms of thinking and reasoning?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Guiding questions are fundamentally linked to developing problem-solving skills.	7	Mrs A., Mrs R., Ms S., Ms D.J., Mrs M., Mrs P. & Mrs K.
Drawing from existing knowledge is important to developing problem-solving skills.	7	Mrs A. & Mrs J., Mrs K, Mrs D.J, Mrs P., Ms S. & Mrs R.
Stories are a positive vehicle for developing problem-solving skills.	7	Mrs R., Ms S., Mrs G., Mrs D.J., Mrs M., Mrs P., & Mrs V.R.

Problem solving is only consciously mediated when managing problem behaviour.	6	Ms B., Mrs F.K., Ms S., Mrs G., Mrs M. & Mrs K.
Problem solving is primarily linked to numeracy/problem-solving sums.	6	Ms B., Mrs F.K., Ms S., Mrs G., Mrs M. & Mrs K.
In order to problem solve, information must be scaffolded.	3	Mrs A., Mrs M. & Mrs F.K.
Problem solving is linked to language.	3	Mrs A., Ms B., Mrs F.K.
Problem-solving skills are developed in life skills projects.	2	Mrs F.K. & Mrs R.
Problem solving is linked to EQ.	2	Mrs H. & Mrs V.R.
Teaching problem-solving skills is facilitated through “mind maps”.	1	Mrs F.K.
Problem-solving skills are facilitated through experiential learning.	1	Mrs F.K.
Thinking and reasoning is developed through providing learners with clues.	1	Ms B.
Visualization helps with listening skills and therefore problem-solving skills.	1	Ms B.
Problem solving happens during ability-group teaching.	1	Mrs M.

One teacher said in her interview that she had found the use of “mind maps” very helpful when developing the language of problem solving. She described her learners sitting together around a large piece of paper and practicing writing words on a theme of “Pets”. Two other teachers (14%) made mention of “mind maps”, but it was not specifically in the context of problem-solving skills. One of the teachers said that she found using mind maps problematic in the Grade One age group and the other suggested that it could be a useful tool for group work but that she had limited experience.

One teacher (7%) spoke about using visualization as a tool for developing problem-solving skills. This was used in terms of helping learners to listen and to recall their word lists. One teacher suggested that problem-solving skills are developed during experiential learning

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exercises such as baking. This same teacher intimated that problem-solving skills are consciously developed during a special project or life-skills exercise that takes place a couple of times per year.

Generally this was not seen as something that is consciously developed or that makes up part of the teacher's daily approach to teaching.

5.4.4 Do you make use of the learner's existing knowledge when introducing a new concept?

This question was designed to identify the teachers' understanding of the relationship between what the learner brings to the classroom in their existing knowledge and the importance of this in relation to the development of scientific concepts. Eleven teachers (79%) struggled to answer this question. They appeared to know that it was something they should do but did not really know why. All 14 teachers (100%) acknowledged in some way, that making use of the learner's existing knowledge was an important step when introducing a new concept. The reasons given varied from having been taught at college that this was important for establishing a base line from which to build new information to suggesting that "once you have an understanding of what the child really knows it gives you the way forward"

Some teachers stated that it was important in order to avoid learners getting bored with too much repetition of work that they had already done in Grade R, and in other instances teachers said they used it to establish what had been covered in Grade R. Mrs A. said, when referring to what learners had covered in Grade R, "you need to supplement what they already know and sometimes you need to un-teach first before you can supplement." She appeared in the interviews to imply that the Grade R teachers were covering some inappropriate material such as

writing but not covering the basics of phonics. This she felt meant that she acquired learners whose core knowledge of phonics was absent and they were forming their letters incorrectly.

One teacher suggested that it made the teacher's job easier because the learner has a "greater understanding of the knowledge that comes next." Mrs P. stated that it was important to always work from the "known to the unknown because it builds learner confidence which makes it easier for them to learn". Two other teachers, Mrs F. and Mrs V.R., mentioned the importance of building confidence through drawing from existing knowledge. Mrs A. said it was important because learners could hear what their peers were saying and this would help in their own understanding of a new concept. Mrs F.K. said it provided a basis upon which new information could be scaffolded. Ms S. suggested that the language used by the learners was more accessible to their peers and that this would make learning easier. Mrs K. implied that it established a baseline which would allow her to pitch her lessons appropriately.

Table 18: *Responses to question: "Do you make use of the learner's existing knowledge when introducing a new concept?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Teachers used it when introducing a new concept.	11	Mrs A., Ms B., Mrs P., Mrs J., Mrs S., Mrs F., Mrs F.K., Mrs H., Mrs V.R., Mrs G. & Mrs M.
Questions were the primary means of establishing existing knowledge.	10	Mrs H., Mrs A., Ms B., Mrs J., Ms S., Ms D.J., Mrs M, Mrs P., Mrs F. & Mrs V.R.
Teachers always use existing knowledge as a basis for new learning.	8	Ms S., Mrs H., Mrs G., Ms D.J., Mrs M., Mrs K., Mrs P. & Mrs F.
It is considered important as a foundation for new learning.	7	Ms B., Ms D.J., Mrs G., Ms T., Ms S, Mrs M., Mrs P. & Mrs V.R.
Drawing from existing knowledge is linked to establishing a baseline.	6	Mrs J., Mrs R., Mrs H., Mrs G., Mrs M. & Mrs K.

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News time was recognized as an important way of drawing from learner's existing knowledge.	4	Mrs F.K., Mrs R., Ms S. & Mrs F.
It builds learner confidence.	4	Mrs P., Mrs H., Mrs V.R. & Mrs F.
Teachers felt it was important when dealing with problem learner.	1	Ms B.
Teachers consider it difficult to establish learner existing knowledge.	1	Mrs R.

It should be noted that only one teacher (7%) indicated that drawing from learner's existing knowledge was important when working with a problem learner and one teacher stated that she found it difficult to establish learner existing knowledge. Seven teachers (50%) considered it important to draw from existing knowledge when introducing a new concept whilst eight stated that they always used this approach as a basis for new learning. Six teachers (43%) indicated that it was an important means of establishing a baseline of knowledge upon which new learning could be built. Ten teachers (71%) suggested that asking questions was the most effective means of establishing learner existing knowledge. The remaining four teachers did not indicate any alternative ways in which they might establish learner existing knowledge. Four teachers (29%) described weekly "news time" as a regular slot in which they actively made use of learner existing knowledge. It should be noted that this does not usually involve introducing a new concept but rather learners simply telling their news of what happened on the weekend. In some instances it can involve writing a sentence and drawing a picture but given that "news time" is a regular activity with the aforementioned structure, it is debatable whether it falls into the category of "introducing a new concept".

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5.4.5 Do you consider it important to set goals for your learners and if yes, could you give me examples of the type of goals you would set?

This question was designed to obtain an understanding of how teachers work with the ZPD. By recognizing the needs of the individual through goal setting which would facilitate the teacher-learner scaffolded relationship, the teacher would potentially promote new learning. Nine of the teachers admitted that they found it challenging to set goals for individual learners. For example "They are all different so for me to say set a goal for a child is a bit far-fetched because I don't know what this learner is actually capable of and how much that child can get in." One teacher admitted that she was "not the best at setting goals" but that she preferred to "scaffold tasks to meet the needs of her ability groups". Eight teachers (57%) suggested that at Grade One level the differentiation of learners was largely met by means of "ability group" teaching. For example: "So it is not one child in particular but that group…where can I push them to."

The emphasis was placed on goal setting around academically problematic learners with 11 teachers (79%) suggesting this as the area in which they are aware of individual goal setting. For example: "The weak ones I will give special attention". The special attention, mentioned by three teachers, may take the form of extra work that was sent home for the parents to engage with their child and help them to come up to speed or setting specific targets on daily tasks. It was acknowledged that there was little scope for extension of the more capable learner and that the middle group, mentioned by three teachers, was generally ignored because it was felt that they did not really need attention owing to their being able to "just get on with the task". For example: "…with 38 kids it is kind of tough to get to. You kind of focus on the weak and the strong and your heart goes out to the middle group because they kind of just plod along."

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This question was also interpreted in terms of behaviour with some teachers stating that they had to set goals for learners who were problematic or disruptive in the classroom. The goals would be by means of a star chart where the learner would receive a star on their chart if their behaviour was appropriate. Completion of work was seen as another area that was problematic and would require a certain amount of goal setting. For example, "So a lot of it is for behaviour and for completion of work more than for actual extension of work." When extension was mentioned it usually involved extra worksheets, moving ahead in the class work book or additional work cards. Learners were expected to independently engage with this material and it was seen as a means to occupy more capable learners whilst their peers were involved in the general class activity. It should be noted that at no stage was this type of extension observed by the researcher over the research period.

Seven of the teachers (50%) who did set goals either for their ability groups or for the individual problem learners, suggested that it was difficult to reassess the goals and set new ones. Responses ranged from "weekly", "fortnightly," "once a month" to "eventually". This was attributed to time constraints as a result of the pressures of the CAPS (2011) curriculum and high class numbers.

Table 19: *Responses to question: "Do you consider it important to set goals for your learners and if yes, give examples?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
The focus for goal setting at individual level was on the problem learner.	11	Mrs A., Ms B., Mrs F.K, Mrs J., Mrs R., Mrs H., Ms D.J., Mrs P., Mrs F., Mrs V.R. & Mrs K.
Teachers view goal setting as difficult in practice.	9	Mrs J., Mrs F.K., Mrs A., Ms B., Mrs H., Mrs G., Mrs P., Mrs V.R. & Mrs K.

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Goal setting takes place within ability groups rather than individually.	8	Ms B., Mrs F.K., Mrs J., Mrs R., Mrs K., Mrs G., Ms D.J. & Mrs P.
Teachers who struggle to reassess goals and set new ones.	7	Mrs F.K., Mrs J., Mrs R., Ms D.J., Mrs P., Mrs V.R. & Mrs K.
Teachers consider it important to set goals for their learners.	6	Mrs J., Mrs A., Ms D.J., Mrs P., Mrs F. & Mrs V.R.
Teacher doesn't believe in setting goals.	5	Ms S., Mrs H., Mrs G., Mrs M. & Mrs K.
Teacher recognizes the need and sets goals for top learners.	5	Mrs A., Ms B., Mrs J., Ms D.J. & Mrs P.
Teachers had not really thought about goal setting until the interview.	4	Mrs R., Mrs M., Mrs F. & Mrs K.
Teacher scaffolds work for a problem learner in order to achieve a goal, e.g. completion of a task.	4	Mrs A., Ms B., Ms D.J. & Mrs M.
Teachers set goals in collaboration with parents.	4	Mrs A., Mrs F.K., Ms B. & Mrs F.
Goal setting was generally associated with completion of work.	4	Mrs A., Ms B., Mrs M. & Mrs P.
Teacher associated goal setting with homework for problem learners.	3	Mrs A., Ms B. & Mrs F.K.
Teachers stated they ignored middle group.	3	Mrs A., Mrs G. & Ms B.
Teacher regularly makes use of explicit scaffolding to set goals for whole class.	1	Mrs A.
Teacher considers Grade Ones too young to set individual goals.	1	Ms S.

Only six teachers (43%) considered it important to set goals for their learners, whilst five teachers said that it was not necessary. Five teachers (36%) recognized the need to set goals to extend their more capable learners with one teacher suggesting that Grade One learners are too young for goal setting. Only one teacher (7%) explicitly designed daily goals and was both filmed and observed putting this into practice.

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5.4.6 Do you consider it important to recognize and cater for the individual needs of the learner?

This question links to the previous one in that it is about catering for the individual in the classroom out of which goal setting would originate. "It is important but not really possible." This was stated by one of the teachers and sums up the general attitude towards the challenges of giving individual attention to their learners. Of the 14 teachers, 12 (86%) considered it very important but 10 teachers (71%) suggested that it was extremely difficult. For example: "Realistically I am saying…I can't, it is not happening." The difficulties of providing individual attention was attributed to high class numbers, the excessive work load created by CAPS (2011) and the lack of teacher assistance. For example: "You get tired if you are doing everything on your own and if the class is so big." Six teachers (43%) said that they were able to work with the individual learner on either a daily basis as part of an ability group, once a week or once a month. For example: "I mean daily…that is another story..but weekly yes, weekly. 38 is just a number and that is how you have to look at it." Seven teachers (50%) said that working with individual learners was possible when they had a teacher assistant available. One teacher said, "At the moment it is not necessary as they are all doing the same thing."

Table 20: *Responses to question: "Do you consider it important to recognize and cater for the individual needs of the learner?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Teachers consider it important to cater for the individual needs of learners.	12	Mrs A., Ms B., Mrs F.K., Mrs J., Mrs R., Mrs H., Ms S., Mrs G., Mrs M., Ms D.J., Mrs P. & Mrs K.
Teachers tend to focus on the problem learner when catering for individual needs.	11	Mrs A., Mrs F.K., Mrs J., Ms B., Mrs R., Mrs H., Ms S., Mrs G., Mrs M., Mrs P. & Mrs F.
Teachers consider it difficult to cater for individual needs of learners.	10	Mrs V.R, Mrs F., Mrs A., Ms B., Mrs F.K., Mrs J., Mrs P., Ms S., Mrs G. & Mrs K.

Teachers felt this was achievable with support from a teacher aid.	7	Mrs J, Mrs R., Mrs H., Ms S., Mrs G., Ms D.J. & Mrs K.
Teachers recognize that learners are individuals with differentiated developmental levels.	4	Mrs A., Mrs J., Ms S. & Mrs K.
Teachers cater for their top learners and extend them in some way.	4	Mrs A., Mrs H., Ms S. & Mrs M.
Working in ability groups allows for individual attention.	4	Mrs F.K, Mrs G., Ms D.J. & Mrs J.
Catering for the individual needs of top learners involves giving them extra work.	3	Mrs H., Ms S. & Mrs M.
Teacher adjusts her teaching to meet the needs of the individual.	2	Ms B. & Mrs R.
The smart-board caters for the individual needs of learners.	2	Mrs H & Mrs G
Catering for individual needs of learners is primarily linked to EQ.	2	Mrs V.R. & Ms D.J.
The teacher recognizes that meeting individual needs of the learner involves goal setting.	1	Mrs F.K.

Despite the general policy of streaming Grade One learners for both literacy and numeracy, only four teachers (29%) mentioned that learners have different developmental levels. Working with individual learners seemed to be primarily grounded in addressing the needs of problem learners with 11 (79%) of the teachers citing this as their focus. Four teachers (29%) mentioned some sort of extension for their more capable learners but this was in the form of extra work. Four teachers (29%) suggested that when working in an ability group they were able to get to know the learners better because the groups are small and in this way they cater for the individual needs of the learners. There was little to no evidence of this in the observation and filmed footage as most learners within an ability group were treated as part of a "unit". This means that everyone was seen as performing at the same level within their ability group and required to do exactly the same task. Two teachers (14%) indicated that making extensive use of

the smart-board allowed them to cater for the individual needs of the learners because the smart-board was both a visual and auditory resource and learners have different modes of learning. Two teachers (14%) interpreted catering for the needs of individual learners as meaning their emotional needs and spoke about providing attention when a learner was in some sort of crisis. Only one teacher (7%) recognized the importance of goal setting when catering for individual needs of the learner.

5.4.7 Explain how you would support or help learners who have difficulties grasping a new concept.

This question was chosen in order to establish whether teachers scaffolded their mediation, drew from learner existing knowledge or made use of peer mediation and what their general approach was to addressing the individual needs of their problem learners. In other words to get a sense of how they describe their teaching. Mrs A. stated that "we look at what was told, what do you know and what must they find out?" In this statement she is demonstrating that she does draw from existing knowledge in the "what do you know". She is setting a goal in the "what must they find out". Ms B. spoke about using a Grade 3 learner to facilitate the teaching of a French second language learner and that she scaffolds learning by providing easier steps for those learners that struggle to complete a task. Only three teachers (21%) made mention of using peer mediation to facilitate the teaching of a problem learner. Ms D.J. said that she paired weaker learners with more capable learners because she felt that this allowed the learner to relate better with their peers but that she only tried this sort of thing in the third or fourth term because then her more capable learners were considered strong enough to embark on this type of mediation. Mrs P. said she made extensive use of peer mediation and that she had a lot of

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success with a learner who was struggling to write and that the problem learner was mediated during break time by a more capable learner. She admitted that her normal strategy was to work with small ability groups where all the problem learners are streamed into one group. At no stage did the researcher witness peer mediation. Thirteen teachers (93%) explained that they go back to basics and make use of concrete objects as they believe this enables the problem learner to fill in the gaps.

Working during class time with individual learners was cited by nine of the teachers (64%) as a strategy for assisting the problem learner. It should be noted that seven teachers (50%) stated that their primary means of addressing problem learners was through the use of a remedial teacher or teacher assistant. This would occur during class time when individuals or groups of problem learners would be collected by the remedial teacher or teacher assistant and taken to a dedicated space for extra support. Mrs R. said that she found it very disruptive to have the teacher assistant working with a problem learner during class time in her classroom and preferred the teacher assistant to step out of the class and either work in the passage or in the designated room when available. In School 1, it was observed that there were frequent interruptions to the general teaching time when the remedial teacher would come to collect a group of learners, return the group of learners or obtain teaching resources such as basal readers, from the class teacher. In one instance there were five interruptions noted during one 40-minute teaching session. Three teachers (21%) mentioned that they took learners after school hours to work with them but that this was usually in the form of a small group of learners who would be taken by someone other than their own class teacher. The teacher would play games with the learners or engage them in extra reading and more concrete activities.

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Table 21: *Responses to question: "Explain how you would support or help learners who have difficulties grasping a new concept.", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Teachers go back to basics and use concrete objects.	13	Mrs A., Ms B., Mrs F.K., Mrs J., Mrs R., Mrs H., Ms S., Mrs G., Mrs M., Ms D.J., Mrs F., Mrs K. & Mrs V.R.
Teachers work with learners during class time.	9	Mrs A., Ms B., Mrs J., Mrs R., Ms S., Mrs G., Mrs D.J., Mrs F. & Mrs K.
Teachers liaise with parents to address solutions for the problem learner.	8	Mrs F.K., Mrs H., Mrs M., Ms D.J., Mrs P., Mrs F., Mrs K. & Mrs V.R.
Working with the individual is very important.	8	Mrs F., Mrs R., Ms S., Mrs A., Mrs F.K., Mrs P., Mrs M. & Mrs H.
Teachers mainly make use of external remedial support/teacher assistants.	7	Mrs A., Mrs F.K., Mrs R., Mrs H., Mrs G., Ms D.J. & Mrs P.
Teacher consciously scaffolds a task into smaller components or expectations.	6	Ms B., Mrs H., Ms S., Mrs M, Mrs P. & Mrs F.
Teacher begins by establishing the nature of the problem using assessment with work card/baseline test/questions.	5	Mrs A., Mrs R., Mrs H., Ms S. & Mrs F.
Repetition was essential to consolidate new learning.	5	Mrs H., Mrs M., Ms D.J., Mrs F. & Mrs K.
Teachers send a home programme home for parents to apply.	4	Mrs H., Ms S., Mrs F.K. & Mrs F.
Teachers make use of peer mediation to assist a problem learner.	3	Ms B., Ms D.J. & Mrs P.
Teacher takes learners after school for extra lessons.	3	Mrs F.K., Mrs R. & Mrs H.
Game playing is a beneficial way to assist problem learners.	3	Mrs J., Ms D.J. & Mrs A.

Eight teachers (57%) acknowledged the importance of involving the parent in finding and achieving solutions to the problems displayed by the learner. In some instances a home programme was designed specifically for a learner or a generic programme would be sent home with targets to be achieved during the week. Eight of the teachers (57%) stressed that working

with individual problem learners was very important and that they tried to achieve this whenever they had a gap during the day, during break time or early in the morning.

5.4.8 What resources do you currently use the most and why?

This question was chosen to provide a sense of what mediating tools are used and where teachers place the focus when teaching and how they may go about it. For example by choosing to use a smart-board the teacher may be acknowledging that her learners are developing in a technological era and would therefore relate to information that is presented in a familiar manner.

Both in the first and second term teachers placed the emphasis, on flash cards with 12 teachers stating that this was the resource that they made the most use of. In the first term they were considered important for revision of basic phonics and the alphabet. In the second term they were used to reinforce sight words. Ten teachers (71%) expressed a preference for the use of sentence strips which were used most extensively in the less privileged schools namely schools 2 and 3. The prescribed basal reader from the Oxford Tree series was available at all five schools, but Schools 1 and 2 made use of the "Cathy and Mark" series as additional readers. Eight teachers (57%) considered the basal reader as a primary resource.

Smart-boards were evident in Schools 1, 3 and 5. School 3 is classified as less privileged, but School 1 is drawing from a upper to middle class socio-economic demographic with school 5 feeding the middle to lower class demographic. In School 5, only one of the three teachers had a smart-board in her classroom and one of the teachers consciously did not want to use the smart-board as she considered herself "old school" and unable to adapt to technological changes. The teacher who had the smart-board made extensive use of it. In School 1, all three teachers had

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smart-boards but over the research period two teachers experienced problems with their board. In School 3, all four teachers had smart-boards but in the first term three of the boards were not operational. It should be noted therefore that seven teachers (50%) considered the smart-board as extremely beneficial to their teaching. For example: "The children enjoy it more…so they are actually learning instead of talking all the time...and then of course you have the days when the board doesn't work…I use the board a lot."

Table 22: *Responses to question: "What resources do you currently use the most and why?", ranked by frequency of response.*

Thematic responses	Number of teachers	Relevant teachers
Teachers use flashcards	12	Mrs A., Mrs R., Ms S., Ms B., Mrs H., Ms D.J., Mrs F.K., Mrs M., Mrs P., Mrs J., Mrs F. & Mrs V.R.
Teacher uses sentence strips.	10	Mrs A., Mrs F.K., Mrs J., Mrs R., Ms S., Mrs M., Mrs K., Mrs P., Mrs F., Mrs V.R.
Teacher makes use of basal readers.	8	Mrs F.K., Mrs J., Mrs G., Ms D.J., Mrs M., Mrs P., Mrs F., Mrs V.R.
Teachers make extensive use of smart-boards.	7	Mrs H., Mrs G., Ms D.J., Mrs M., Mrs K., Mrs P. & Mrs F.
Teachers use "Big Books" for shared reading/writing.	6	Ms B., Mrs J., Mrs F.K., Mrs R., Mrs H. & Mrs M.
Teacher makes use of pictures.	4	Mrs A., Mrs F., Mrs R. & Mrs K.
Teachers use "Word wall".	4	Ms B., Mrs G., Ms D.J. & Mrs F.
Teachers make use of worksheets.	4	Mrs A., Mrs F.K., Mrs J. & Mrs V.R.
Teachers use games.	3	Mrs A., Mrs F.K. & Mrs P.
Teacher uses sight word lists.	3	Ms B., Mrs F.K. & Mrs G.
Teacher uses box books.	3	Mrs R., Ms D.J. & Mrs M.

Teacher makes use of concrete objects or toys.	2	Mrs A, Mrs F.K.
Teacher uses a library to source books for the learners.	2	Mrs F.K. & Mrs J.

Only two teachers (14%) mentioned using concrete objects or toys. Three teachers stated that they consciously played and or used games with their learners. Two teachers described using the library as a regular resource both for the learners and the teacher.

Four teachers (29%) described using the "word wall" as a resource particularly when the learners were required to write their own sentences. It was observed that only four teachers (29%) had a "word wall" in their classrooms and that none of them had updated their word walls over the six month research period. It was revealed in conversation that the "word wall" was a CAPS (2011) requirement.

Three teachers (21%) mentioned using sight word lists as a regular resource and it was observed in two filmed lessons at two different schools (namely Schools 3 and 4) that the learners were reciting the words off the lists.

Box books are a supplementary reader that is given to learners in addition to their basal reader. They are frequently graded books and learners are allowed to make use of these books over a two week period. Three teachers noted that box books were an important resource but it was observed in practice in only one school namely School 1.

Four teachers (29%) mentioned using worksheets as a regular resource but over the observation period it was evident that in Schools 1, 5 and 4, worksheets were being used either daily or several times a week. Schools 2 and 3, the less privileged schools, made limited use of worksheets and this was observed in only two lessons from seven teachers and 21 filmed observations.

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5.4.9 Summary

The interviews showed that there was a degree of disconnect between what the teachers said about their approaches to pedagogy and what was empirically observed in the film footage of their lessons. An example is that of collaborative learning which the teachers generally expressed strong reservations about as a technique, but which most used regularly in some form or other. A second, converse example is that of use of the ZPD, which was strongly supported by the teachers who verbally endorsed the need to cater for individual needs of learners, but provided little goal-setting or individual mediation in practice. Interviews and observations of practice matched in the case of the use of existing knowledge (the most frequently used mode), but the inconsistency in this instance concerned the use of the mode only for groups, and not for individuals. Overall, the contrast between observed pedagogical styles and views expressed in the interviews was significant. The need to assist teachers in applying pedagogical theories as practical tools for learning will be covered in the Discussion chapter. The following section addresses the outcomes related to a cross-cutting analysis of data with a view to establishing potential tools for mediation in the development of early reading competencies.

5.5 Cross-cutting analyses

This section deals with analyses which combined the results of the learners' literacy tests and information about the teachers' pedagogic modes. A dimension-reduction technique was applied to the learner and teacher data to explain as much variability as possible using fewer variables. Instead of using original variables, a certain number of principal components (which are like weighted averages of the original variables) were used. Components were chosen in

such a way as to allow the majority of variation observed in the original data to be explained using the minimum number of components. In the accompanying graphs, the horizontal axis is the first component, the vertical axis the second.

In the first analysis, learner outcomes were related to teacher identity (Figure. 18,p. 221). The purpose was to see whether there was patterning of learner data that indicated whether some teachers were more successful than others in terms of transference of literacy skills. The three original test variables (the absolute change for each) were used. Each student under each teacher was given one value for each test score; those three values were represented by one sample point. The original values can be read off the lines by drawing a line from the point to each line in turn.

The positions and directions of the lines themselves give an indication of the correlation between the three variables (Figure 18, p. 221).

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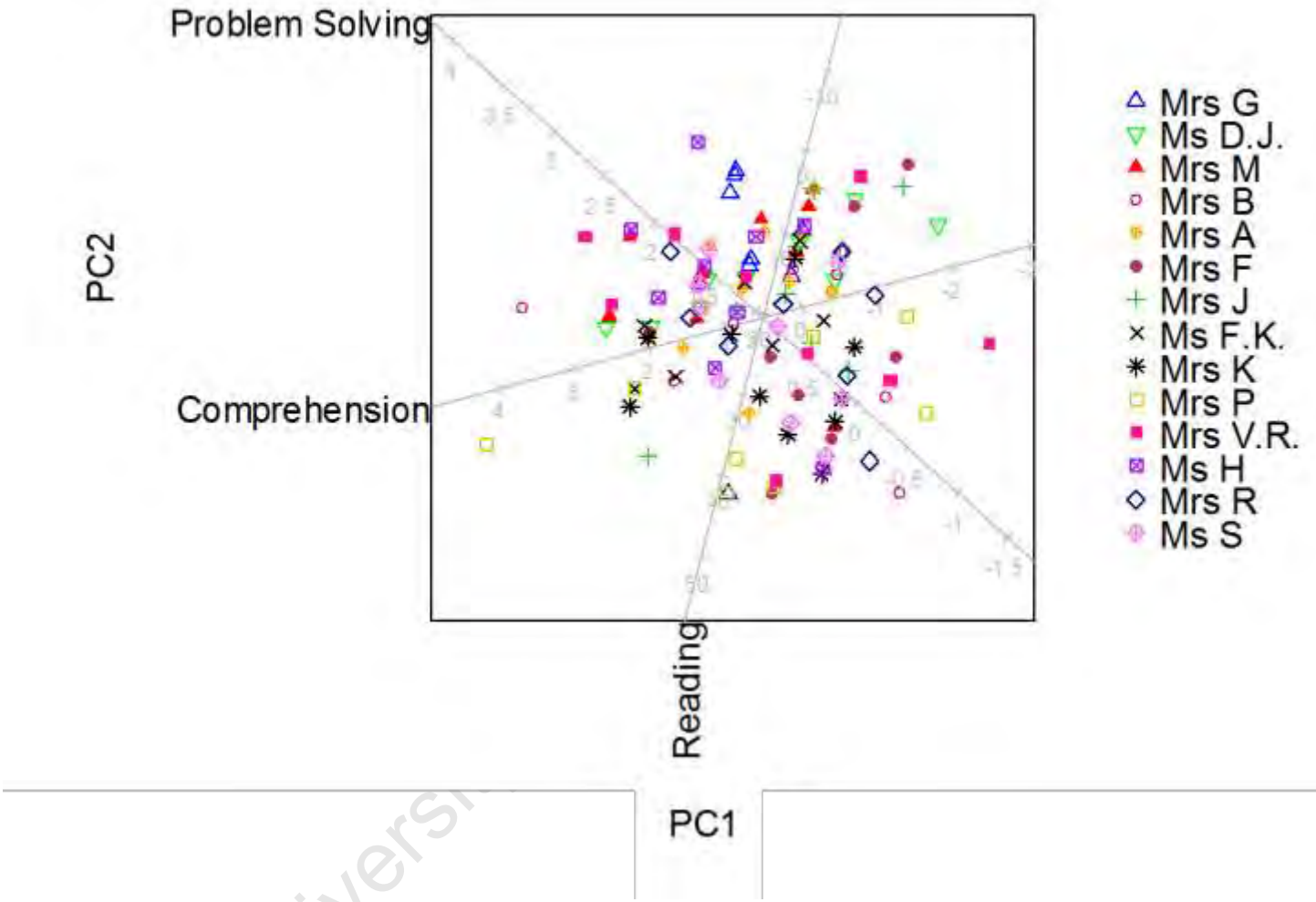

Figure 18: Principle component analysis of learner outcomes, related to teacher identity. Higher values of problem solving are toward the left hand side of the graph, and higher values of comprehension and reading are toward the top and right hand sides of the graph respectively. The colours represent the 14 teachers. The proportions of variance explained by component 1 and 2 are 44% and 36% respectively, giving 80% overall. Note the overall lack of patterning.

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In the analysis, the lines representing the three data sets are not clustered together, indicating that the three variables were not highly correlated (Figure 18). There is not much in the way of pattern in the graph. If points of a particular colour had clustered together, it would have indicated a particular trend for a teacher, but this is not apparent. This means that (a) learners differed widely in their performance, even when in the same class, and (b) performance of a learner in any one area of learning is not a good predictor of how the learner will perform in another area of learning. For example, if a learner performs well in reading he may not do so in comprehension. This speaks to the individual characteristics of a learner who may be capable in one area but not another. There was no clustering together of learners for a particular teacher which suggests that teaching style is not the dominant determinant of learner outcomes; therefore, the individual inherent potentialities are more relevant determinants of learner outcomes. Significantly, support for the individual needs of learners was found to be a weakness in all of the teaching styles (see section 5.3, p. 165-195).

A second analysis illustrated the relationship between the predominant pedagogic modes and learner results (Figure 19, p. 223). The principles of data presentation were the same as before, but teacher identity was replaced with dominant pedagogic mode of the teacher in question. The purpose of this analysis was to investigate whether learner outcomes were patterned according to the dominant pedagogic mode used. While patterning was again not strong, it is notable that improvements in both comprehension and reading were mostly seen in those learners whose teachers mainly used collaborative learning (Figure 19).

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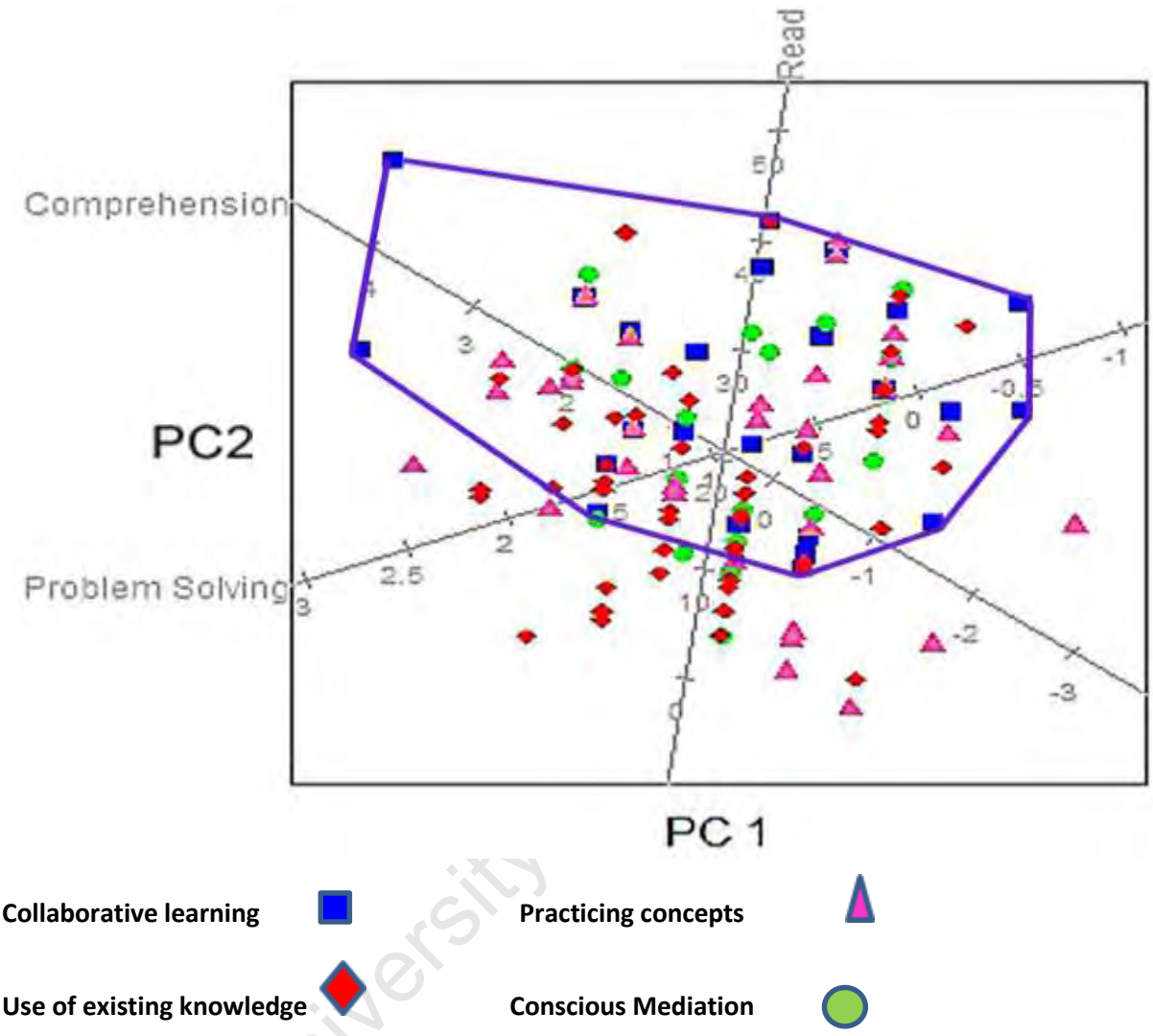

Figure 19: Principle component analysis of learner outcomes related to dominant pedagogic modes. Sample points represent learner scores on the three tests and the symbols indicate the dominant mode used by the teacher related to that point. The proportion of variance explained by the first two components is 44% and 36% giving an overall score of 80%. What is noteworthy is that comprehension and reading scores are mostly stronger in those students whose teachers used collaborative learning the most (blue squares and polygon).

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5.5.1 Conclusion

The lack of strong patterning of literacy outcomes in relation to teacher identity or pedagogic style suggests that it is learner-related factors more than teacher-related factors that are the primary determinants of literacy outcomes.

The link between collaborative learning and comprehension and reading outcomes is an interesting feature of the cross-cutting analysis. It suggests that Vygotsky's theory of social learning can be substantiated, but the nature of the collaborative learning needs to be described in greater detail. Furthermore, evidence that learners are individual in their performance despite a relatively uniform or consistent approach in the various modes of teaching, supports the need for teachers to find ways of working with learner's ZPD's as a primary tool for learning.

The following chapter will unpack the findings and speak to the research questions and theoretical framework of the research. It will identify how this research has added to the knowledge base associated with CHAT, as well as the limitations of this study and possible future research.

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6. Discussion

How children learn and how best to teach them was at the heart of this research project. By analysing film footage and interviews of 14 teachers and literacy tests of 126 learners, the researcher explored what teaching and learning looked like, through a Vygotskian lens. This chapter discusses the findings of the project and their relevance to the research aims and questions. The research indicated that the individual needs of learners are of paramount importance, and how teachers teach is central to how learners learn.

6.1 Findings: an overview, strengths and limitations

Data-gathering in this research project followed two primary approaches: one quantitative and one qualitative. It was planned that the data from these distinct methods would be complementary and would provide objective insights into the efficacy of differing pedagogic styles beyond that which either type of evidence would allow on its own. With hindsight it can be said that this research design was well-advised and effective, but not entirely to the degree that was hoped or anticipated. The principal reasons for this are the following:

- The number of schools (five) and teachers (14) sampled was too small to provide valid generalizations about South African teaching and learning, but rather gave the researcher a sample of some of the challenges to effective teaching, as well as some of the pedagogic strengths, in South African schools. Difficulties in obtaining research sites meant that the researcher was not able to work in township or rural schools and therefore could not sample these important categories of school. One school opted out of the project in the first phase and this prevented the researcher from getting information from a highly privileged school.

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- The literacy test used did not cater sufficiently for more competent readers, thus reducing the discriminatory power of the test.
- The unavailability of standardized reading and comprehension tests that are relevant to South African contexts was problematic and this may have had an impact on learner results.
- Second-language learners are likely to have been at a fundamental disadvantage in acquiring skills in English and this may have introduced some bias into the quantitative results.
- The coding schedule developed for scoring pedagogic modes did not allow for discrimination between optimal and suboptimal use of a mode, thus reducing the ability to discriminate between the pedagogic styles of the sampled teachers. The coding schedule is a methodological advance in this type of research. Nevertheless, it could be strengthened by making provision for measures which go beyond frequency of use alone by including scores for optimal and suboptimal uses of the modes. This would address the problem encountered in characterizing and differentiating the pedagogic styles of the sampled teachers who all made use of a wide variety of modes, but at different levels of understanding and expertise. It is probable that such an improvement in the schedule would lead to finer discrimination between pedagogic styles which, in turn, would permit more insightful assessment of the efficacy of those styles.
- The strong effect of learner entry-level literacy competence on measurement of subsequent improvement was not anticipated. This had the effect of masking, to some degree, the efficacy of teachers working in somewhat privileged communities where entry levels were relatively high.

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Despite these limitations, the research did demonstrate that sampling across a variety of socio-economic contexts provides a measure of how teachers are teaching and that, irrespective of economic and social background, the pedagogic styles of teachers are a key determinant of learner outcomes. Quantitative data produced some clear and interesting results. Chief among these were:

- All 14 teachers used a wide variety of pedagogic modes, beyond what may have been expected.
- Whilst it is to be expected that as learners mature they would improve over the passage of time, all teachers achieved significant improvement in their learners' competence in reading, beyond what may have been expected in some underprivileged schools.
- Improvements in comprehension and problem-solving skills were significantly less widespread than for reading.

Qualitative data also produced useful results which were complementary to the quantitative data. Outstanding findings were:

- Attitudes and values regarding pedagogy, as expressed by the teachers in interviews, were often not reflected in their classroom practice.
- Several pedagogic modes, although used in a relatively rudimentary manner, were not used optimally and could not, therefore, be said to have been used effectively. For Example collaborative learning and use of existing knowledge. This is discussed later in this chapter.
- The degree of success of teachers could, in most instances, be understood in terms of their pedagogic styles as displayed in filmed footage of their lessons.

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- Effective teachers, in several instances, had developed highly individual pedagogic styles based on their own experience of what were effective tools for learning.

Drawing from a variety of socio-economic milieus, a case study approach was used to examine what pedagogy looks like in classrooms. The researcher made use of a pre- and a post-test for reading, comprehension and problem solving to measure pedagogic efficacy. A framework was developed in which ten pedagogic modes were identified both deductively and inductively from practice (see p. 117-119 in Research Design).Pedagogic modes were analysed within a socio-cultural framework that determined the criteria used in designing a coding schedule. In addition to six *a priori* Vygotskian pedagogic modes, pilot observations revealed four commonly used non-Vygotskian modes which were included in the analytical tool (see p. 165-166, section 5.3.1).

Statistical analysis of data from the aforementioned tests, allowed the researcher to demonstrate a significant shift between the pre- and post-tests and link these results to pedagogic modes to determine how children learn and how best to teach them (Figure 19, p. 223). The coding schedule, which identified 10 pedagogic modes (six Vygotskian and four non-Vygotskian), showed that all 14 teachers made use of most of the modes and appeared aware of the skills available in their pedagogic toolkit (Figure 16, p. 191). The four most commonly used modes were use of existing knowledge, practicing a concept, collaborative learning and conscious mediation. All of these are fundamentally Vygotskian in nature.

Condy (2008) suggested that teachers are aware of what makes for effective literacy teaching; however, this research evidenced that some pedagogic modes are more effective than others and that the manner in which they are executed makes a profound difference to their efficacy. A cross-cutting analysis of learner data with pedagogic mode evidenced a significance

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in teachers that primarily made use of collaborative learning, yielding the best results in reading and comprehension. (Figure 19, p. 223). The manner in which collaborative learning was conducted was not purely Vygotskian in nature, however.

All 14 teachers worked in Quantile 5 schools, but within these schools the socio-economic contexts varied from privileged to under-resourced, over- crowded and impoverished. The approach to literacy acquisition was, however, largely similar, that is, a formulaic, "one-size-fits-all" approach, driven by the requirements of the CAPS (2011) curriculum.

The learner demographic showed a significant change between pre- and post-tests, especially for reading (Table 4, see p. 138). Overall, the teachers achieved similar levels of improvement in reading between the pre- and post-tests. This could be attributed to the fact that all teachers adopted the same approach to reading, namely beginning with a bench-mark test which facilitated the sorting of learners into ability groups within which the teachers performed the majority of their mediation. The use of sight words on flash cards, sentence strips which matched sentences in the learners' readers, reading of sentences from the basal reader, and repetition of word lists, all formed part of the strategies adopted by the teachers (see Extract 4, p. 182). This type of teaching relies heavily on repetition and the transfer of literacy knowledge in disconnected units (Pretorius, 2000; Condy, 2008).

The observed collaborative learning was centred around shared reading and writing tasks which took place by means of a "big book"[23]. The teachers began by taking the learners through a "picture walk through a book"[i], prompting learners to describe what they saw in the pictures. Many of the teachers appeared to prefer to cover the sentences below the pictures and to reveal them only in a separate lesson that would follow a week later. The concept of the learners

[23] A big book is a large format (A3) story book used for story time involving the whole class.

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making the connection between the pictures and the words did not appear to be evident which negated the purpose of the "picture walk", as the learners were not able to see how using the pictures could help them to identify what a sentence or word may be, and demonstrated the strategy of teaching literacy in isolated units of knowledge. As the researcher observed this type of teaching strategy in a number of schools, it was concluded that this was an approach being promoted during in-service training workshops.

The CAPS (2011) curriculum specifies a highly timetabled daily programme which 13 teachers (93%) observed assiduously. Gallimore & Tharp (1993) suggested that teachers do not have the time to be experimental in their teaching because curricula are frequently too demanding. The apparently overly prescriptive nature of the CAPS (2011) curriculum appeared to foster a lack of confidence in teachers who revealed in their interviews that they felt pressure to follow the curriculum to the letter. This meant that they were not taking into account their individual teaching and learning contexts, but rather buying into a culture of a standardized, "one-size-fits-all" education. Some of the solution to this may lie in more appropriate in-service teacher training which demonstrates to teachers how to work with the curriculum in a more insightful and flexible manner.

Fleish (2008) suggested that teachers lacked fundamental knowledge and that their interpretation of the curriculum was often problematic. Taylor, Fleisch & Shindler (2008) and Moll & Greenberg (1993) argued that frequent changes in curriculum have exacerbated the crisis in South African education because teachers and learners are not being given the opportunity to develop styles of teaching and learning within a particular curriculum framework, and the structure of the curriculum prevents teachers from having the space to experiment with pedagogic modes. Classroom observation showed that, whilst teachers understood from the

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curriculum that they needed to draw from learners' existing knowledge, they did not understand the need to build on the knowledge or how to address it on an individual basis. Furthermore, whilst they appreciated the need to collaboratively build knowledge, they did not encourage open-ended discussion or the exploration of concepts and problem-solving skills. Most teachers appeared to be threatened by the new curriculum and viewed it as preventing them from addressing the learners as individuals (Table 20, p. 211).

Time constraints and an over-loaded curriculum were frequent excuses used to address the issue of the lack of individual attention or goal setting. Whilst it is encouraging that the curriculum and in-service training is recognising the importance of a Vygotskian approach to learning, much work still needs to be done in assisting teachers to be more discerning in their use of the curriculum (2011). Changing the curriculum as an answer to the crisis in South African education is not where the solution lies (Jansen 1998; Taylor, Fleisch & Shindler, 2008; Fleish, 2011).

Comprehension and problem-solving results in the pre- and post-tests were less obviously significant. In comprehension, some learners retrogressed in the post-test (Table 8, p. 156). This was attributed to the relatively low developmental levels of individual learners resulting in issues around concentration and reading ability. Furthermore second-language learners appeared to be adjusting to the challenges of formal schooling and the language of teaching and learning (LoTL[24]). Entry level was a confounding factor, as seen especially in Schools 2 and 4 where entry level was relatively high and, consequently, a significant improvement in the post-test was less evident. This may have been a weakness of the test that was possibly too easy for some of the more capable learners, and, as a result, the relevant teachers may have appeared somewhat

[24] Language of Learning and Teaching (LoLT)

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less effective than was actually the case. Nevertheless, some teachers emerged with much better results than others and it is their pedagogic styles that helped to clarify how children learn, and highlighted which are effective tools for mediation.

6.2 Classroom teaching and learning

6.2.1 Collaborative learning and use of existing knowledge

In this research, collaborative learning was defined as "the teacher/peer is actively involved in helping the learner to develop his conceptual understanding through questions, probes and actions." Vygotsky's socio-cultural theory places social interaction and language as central to learning (Vygotsky, 1967, 1978; Rogoff, 1990; Karpov, 2003). Vygotsky maintained that learning takes place through a collaborative construction of knowledge between a more capable other and a less able learner. In the foundation-phase classroom, this would typically be a relationship between the teacher as mediator and the learner, or peer-peer mediation. Active discussion of new concepts would be encouraged with language providing the structure around which the learner can define new learning (Vygotsky, 1986, 1987). Within the collaborative context of learning, the learner moves from functioning at a lower mental level to acquiring higher mental functions that are conscious and intentional and allow for the categorization of knowledge (Karpov, 2003). This would be particularly important in the context of literacy acquisition where logical thinking and reasoning, verbal thinking and selective attention would promote an understanding of how historically generated knowledge, such as the alphabet, can be transformed into the act of reading (Dixon-Krauss, 1996; Wood, 2001).

Collaborative learning, as seen and understood by the participants in this research project, was rarely peer-peer or teacher-learner, but rather took the form of the teacher adopting a

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somewhat didactic approach tempered with closed-ended questions aimed at drawing from the collective existing knowledge of the learners. The collaboration stemmed from the learners learning together as a group, guided by the teacher as mediator (Extract 4, p. 182). For example:

Extract 4: *Transcript of Mrs P.'s collaborative learning lesson, part 2.*

T: We are going to do a bit of rhyming words with a little bit of shared reading. Now pay attention. Pay attention (learner's name). We first clap hands come…(clapped hands with class and they copied her) focus now, look at me, pay attention and sit still. The title of this little book…who can tell me or read the title of this little book? Yes (points to a learner). L: Dots… T: Yes (points to another learner) L: Dolly Dots. T: Yes. All say "Dolly dots". L: Dolly dots (learners say in unison)

Vygotsky put forward the notion that learners bring existing knowledge to the classroom and it is upon this knowledge that the teacher builds through mediation (Vygotsky, 1978; Scribner & Cole, 1981; Brice Heath, 1983; Cole & Gajdamaschko, 2007). In the interviews, the teachers emphatically stated that they needed to begin with existing knowledge as this forms the basis for new knowledge. In the analysis of film footage, use of existing knowledge was the mode that was most frequently observed, therefore it could be argued that the teachers supported Vygotsky's notion of learning. However, despite extensive evidence of teachers "drawing from learners' existing knowledge", building on the learners' existing knowledge together with establishing individual ZPD's through scaffolded learning and social dialogue, did not appear to be taking place.

Classroom observations found a style of collaborative learning that was primarily teacher driven and marked by the use of question-and-answer sessions as a tool to test knowledge, but

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not to guide the development of understanding. The majority of the teachers preferred to mediate collaborative learning by means of closed-ended questions that were generated from a "big book" or smart-board exercise (Extract 5, p. 185) For example:

Extract 5: *Mrs H.'s use of existing knowledge in Afrikaans lesson*

4 T: Look how we are playing. Ok let's do this one. (teacher sets up the smart board with labels and an image of a person. What is this? What is this? (teacher points to the different body parts as she asks the questions).
L:It is my finger. (in unison)
(teacher puts up a finger)
T:What is this?
L:It is my leg. (in unison)
T: Good. What is this?
L:It is my foot. (in unison)

A question would be posed and a learner encouraged to respond accordingly. There appeared to be no further development of existing knowledge as learners were not treated as individuals whose knowledge may vary, nor were they encouraged to pose their own questions. Classes responded in unison and a limited number of learners were chosen to respond. It was largely a "one-size-fits-all" approach. This raises the question of how this collaborative approach might yield results. The learners would collaborate in knowledge building in so far as they heard one another's responses that they could use to measure their own knowledge, but they did not actively discuss material beyond what was obvious and already known. Therefore, the learners did not appear to develop sufficient problem-solving skills through exploration of new material or find an opportunity to realise their potential through being challenged beyond their basic individual knowledge (Rowe & Wertsch, 2007). The teachers who achieved the most significant literacy results, deviated from a formulaic method by approaching teaching with a greater sense of conscious mediation (Table 11, p. 162).

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Vygotsky (1978) considered the role of others in learning as an essential ingredient. By others he meant not only adults, but perhaps more crucially, also other children. During the act of socialization, the child is inducted into the culture of learning and understands being part of that culture through participation in activities with others. Ogden (2000) demonstrated that children in the 5-7 age group are capable of peer-peer collaborative learning, but also that the teacher must be proactive in mediating learning. In other words, the teacher needs to be a conscious mediator. There were only two observed instances in which teachers attempted peer-peer mediation, and in both cases the learners were unsure of how to operate in this type of learning context. This resulted in the learners working independently of one another and not benefitting from collaborative learning. The teachers did not consciously mediate within the context of peer-peer learning to assist the learners to understand their roles, giving the researcher the impression that this was not a typical or frequently used pedagogic mode.

Interviews revealed that teachers' understanding of collaborative learning was confined to the concept of "group work" whereby learners were placed in a group to collaborate on completing a combined activity (Table 16, p. 199). Furthermore, teachers were nervous of collaborative learning as they were unsure of how to use it and considered their young charges too immature or too socially inept to participate in this style of learning. The idea that collaborative learning might enhance the development of problem-solving skills through thinking and reasoning was foreign to a number of teachers (cf. Wood, Bruner & Ross, 1976; Tudge, Winterhoff & Hogan, 1996). This was revealed in interviews where several teachers' responses to questions on promotion of problem-solving skills showed that they viewed this as something that was only addressed in the numerical sense, or occasionally in story sums (Table 17, p. 203). Ms D.J., who got the best problem-solving results, did, however, answer that she often addressed

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problem solving through stories and discussion, thereby promoting thinking and reasoning (cf. Palinscar & Brown 1984; Wertsch, 1985).

Thus, collaborative learning according to the teachers' definition, was used for isolated projects throughout the year, e.g. a collaborative art project or cake baking activity. It may, therefore, appear contradictory that collaborative learning was the second most frequently used pedagogic mode (Table 14, p. 181). What was evident was that teachers were following the CAPS (2011) curriculum when electing to make use of collaborative learning as a pedagogic mode. However, despite the mode being frequently used, many of the teachers were confused about what collaborative learning involved and often viewed it as an unstructured disruptive style of learning with an under-lying chaotic flavour. Additionally, collaborative learning was considered time consuming in a curriculum that was already deemed pressurized and problematic.

Two teachers, Ms D.J. and Mrs A., stood out as more flexible in their approach and encouraging of open-ended discussion and more regular peer-on-peer interaction. These teachers focussed not only on the subject content but also offered suggestions on ways in which problems can be solved and meanings made and shared (cf. Wertsch, 2007). Karpov (2005) suggested that the child collects language experiences which they internalize to develop problem-solving skills. It would therefore appear that Ms D.J. and Mrs A. provided mediated opportunities within which their learners could collect language experiences upon which they could internalize new learning.

Mrs A. went so far as to restructure her lesson in order to accommodate a learner's question (Extract 1,p. 169). Interestingly, she did not obtain top results for her learners, but tended to be placed in the middle of the teacher sample. However, entry level was undoubtedly a

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contributing factor in this because her learners entered the pre-test with a relatively high level of literacy skill and therefore the degree of improvement that could potentially be measured was less than in learners in contrasting circumstances (Wood, 2001; Table 10, p. 160).

Ms D.J. presented with the best problem-solving results from her learners, demonstrating that her pedagogic modes allowed her learners to explore new learning in a way that provided them with significant skills in finding solutions (Extract 6, p. 187). Ms D.J. encouraged her learners to talk among themselves when engaged in an activity, and allowed them to assist one another, especially when a more capable learner finished ahead of the others or was seated next to a less able learner. Although she did not consciously mediate strategies for her learners to participate in this type of role, she appeared to allow for the natural desire of her learners to communicate with one another. She posed more open-ended questions, challenged her learners to think of answers, was prepared to wait for an answer rather than quickly providing one herself, and gave positive feedback when a learner responded. This positive and encouraging reaction on her part was not only geared towards learners who gave the desired answer, but also towards responses that may not have been expected. Consequently, her learners may have felt at liberty to risk a wrong answer or to explore alternative solutions.

Of particular significance to this researcher was Ms D.J.'s background in early childhood development (ECD). She began her career in this domain and then studied further to become a Grade One teacher. She often said in her interviews that she drew from her ECD experience and had a heightened awareness of the need to allow for noise in the classroom and learning through fun. Vygotsky (1967) promoted the idea of learning through play, whereby the social interaction allows learners to develop an understanding of rules and regulations, test the realities of the world around them, and explore problems in a safe setting. Perhaps most importantly, it

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provides opportunities for language development and emergent literacy (Bodrova & Leong, 2005; Rubtsov & Yudinea, 2010). The aforementioned points are likely, therefore, to have been contributing factors to Ms D.J.'s significant learner improvements in problem solving (Tables 10 and 11, p. 160 162).

Ms D.J. and Mrs A., contrasted sharply with the other 12 teachers who generally insisted on long periods of silence from the majority of their class whilst the teacher was engaged in activities with the ability groups on the mat at the front of the classroom. The common reason given by the teacher as to why silence was necessary, was her inability to hear the learners read if there was background noise. Maintaining a silent environment resulted in teachers expending an inordinate amount of energy shouting at learners to be quiet and disciplining them. When learners had finished their work, they were encouraged to put their heads down on their desk and "rest". Hoadley (2005) suggested that teachers in South African classrooms do not spend enough contact time with their learners. This research confirmed this is indeed the case, with learners spending too much time disengaged from learning.

Learners were on no occasion observed to be given the opportunity to play, independently explore new learning or engage in more challenging activities. Only one teacher (Mrs M., in the top three for problem solving) had a drawing table set up in her reading corner and learners were allowed to use this space to draw or read when they had completed designated tasks. Most teachers did not have inviting reading corners and in many instances the books were placed in such a way as to make it difficult for the learners to access them. If a more advanced learner finished ahead of time, he was given another worksheet or an extra page in a work book to complete. This is likely to have been a demotivating factor for more capable learners who may

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not have wished to be burdened with "more of the same" and, consequently, may have learned to "set their bar too low" and not realize their potential.

It can, therefore, be argued that collaborative learning, as evidenced in this research, yielded some positive results, possibly as a result of learners having the opportunity to hear each other's responses, but also that the more consciously mediated version of this pedagogic mode achieved significantly better results. Helping teachers to understand the levels of collaborative learning, and how to use them appropriately, has the potential to markedly enhance learning.

6.2.2 Zone of proximal development and goal setting

Vygotsky (1962) introduced the ground-breaking concept of the zone of proximal development (ZPD) whereby the relationship between conceptual learning and development could be illuminated. In this research, use of the ZPD was defined as "The teacher ascertains a learner's individual baseline abilities and then extends the learner's performance toward his individual potential."

Within the teacher-learner or peer-peer relationship, children build on new understandings based on the realization of what they have understood, what they can do and what has been achieved (Cox, Fang &Schmitt, 1998; Bodrova & Leong, 2007). Newman, Griffin & Cole (1993) put forward the notion that the child cannot realize her potential without collaboration with a more competent other. One of the tools that helps the child to do this is the feedback he gets from someone who is tuned into what the child has been doing and where he needs to go. In the school setting, this would be the child's teacher or peers.

This research indicated that Vygotsky's principle, that individual attention is necessary in order to work within the ZPD and thereby realise the learner's potential, was something that

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most of the sampled teachers deemed essential (Table 20, p. 211). However, 10 teachers (71%) admitted that this was difficult and, in some cases, was considered impossible. Perhaps more concerning was that 11 teachers (79%) admitted that they only gave individual attention to problem learners. When responding to the question of how they would assist a learner who was struggling to grasp a new concept, eight teachers (57%) considered it essential to deal with the individual (Table 21, p. 214). Analysis of film footage evidenced minimal use of this strategy, although teachers did say they took learners during break time and after school hours. One teacher, Ms B., had a positive result from the aforementioned strategy, which she used in combination with parental support (Figure 2, learner 5, p. 135). It was apparent that, generally, problem learners were being taken in groups to an alternative venue, during normal teaching time, and potentially losing out on the benefits of general class activities.

Filmed lessons showed that, in reality, little to no individual attention took place for the majority of learners, and when it did happen it was evident in a limited fashion during ability-group teaching. Jennings & Di (1996) suggested that for the ZPD to be effective, groups should be heterogeneous with mixed abilities within a group. The research showed, however, that learners are streamed into groups with homogenous abilities, thereby limiting the flow of benefits from more competent to less competent learners. Interviews showed that teachers considered individual attention during ability-group teaching sufficient and appropriate to meet the needs of their learners. Teachers suggested that, because the ability groups were small, they felt that it was easier to get to know their learners and thereby cater for their needs. Observation of film footage revealed that most learners within ability groups were treated in the same manner and very little individual attention was given, except if a learner was unable to read a sentence or

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decode a word. The ability-group part of any day was limited to 15 minutes per group. Additionally, a given learner may have been part of an ability group only every second or third day as the teacher had to work her way through all the groups within the class. Teachers did not seem open to or aware of alternatives.

Of concern were the emotional ramifications of how learners who were struggling to grasp a new concept were treated. Within the ability group, if the teacher was addressing such a learner, she did not encourage a peer to assist but scaffolded learning in the presence of the peers who were left to observe, thereby potentially making the "problem learner" feel uncomfortable. Furthermore, when groups of learners were extracted from the classroom for remediation, it may have suggested to those learners that they were less capable. The disruption to lessons when groups of learners came and went was problematic as it cut into teaching time. There is a need for research on the impact on the learner of this approach to remediation.

Dixon-Krauss (1996) described how teachers should reflect on whether a learner has understood a new concept, whether he may still need support, and what strategies should be put in place to arrive at a new understanding. This type of goal setting will differ from learner to learner. While only one teacher was observed setting goals and implementing them, nine teachers (64%) expressed reservations about goal setting for learners. The classroom reality was that the focus of goal setting was mainly linked to deviant behaviour, with limited scaffolded learning to support the process (Table 19, p. 209). Consequently, the learners did not get feedback necessary for them to adjust their learning and for new goals to be set (Palinscar & Brown, 1984).

The cross-cutting analysis (Figure 18, p. 221) showed a lack of clear or strong patterning of literacy outcomes in relation to teacher identity or pedagogic style, suggesting that learner-

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related factors are important and possibly primary determinants of literacy outcomes within a relatively homogeneous approach to teaching. Furthermore, evidence that learners are individual in their performance, despite a relatively uniform approach in teaching, supports the need for teachers to find ways of working with learners' ZPDs as a primary tool for learning. Moore & Hart (2007), Clay & Cazden (1993), Blum, Koskinen, Bhartiya & Hluboky (2010), Flint (2010) and Harrison (2011) demonstrated that scaffolded mediation yields positive results. Vygotsky's concept of the ZPD requires the teacher to mediate learning on an individual basis which allows the learner to be challenged sufficiently to realize her potential through assistance from a more capable other (Bodrova & Leong, 2007). The widely differing entry-level competences (as shown in the range of pre-test results, e.g. Figures 1 and 2, p. 133 & 135) also suggest that individual learners enter the school environment with individual needs that are not being addressed in the average foundation-phase classroom.

The more privileged the background of the learners the higher their entry-level literacy competence and the smaller the degree of improvement that could be detected using the pre- and post-tests (see Figures 5 and 11, p. 144 & 154). This incidental finding has implications as it points to the need to modify teaching objectives according to entry level. It appears that the more capable learners are not getting opportunities to progress as much as they might, and that the less able learners may need more fundamental training. This relates directly to Vygotsky's ZPD in which determining learners' baselines and then working within their ZPDs with scaffolded learning allows learners to realise their individual potentials (Bruner, 1977; Bodrova & Leong, 2007). Scaffolded learning was defined in this research as occurring when "the teacher breaks down knowledge into accessible components and provides support until the learner is able to independently perform the task". However, this research showed that the ZPD, together with

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scaffolded learning, was one of the least used pedagogic modes and that teachers struggled to recognise or address individual learner's needs (Figure 15, p. 189), thus confirming that there was a discrepancy between what the teachers said and what they did. Taking into account the needs of the individual was not part of the day to day running of the Grade One classroom.

It could be argued that the challenges of large classes and limited space would undermine and possibly completely eliminate opportunities to set individual goals and work with learners' ZPDs. Previous research at Masters level however, convinced this researcher that it is possible to achieve these objectives if the teacher consciously mediates and works with peer-peer mediation (Harrison, 2011). This style of pedagogy provides windows of opportunity within which the teacher and the learner can set goals, evaluate previous goals and define appropriate challenges for the learner.

6.2.3 Mediation and second-language learning

The literature is clear as to the relevance of cultural, social, historical and ideological aspects of the learner, teacher and learning contexts in facilitation of the acquisition of early reading competencies (Vygotsky, 1978; Scribner & Cole, 1981; Hedegaard, 2001; Street, 2005; Muthivhi, 2011). In South Africa, teachers are grappling with the challenges of reconciling the curriculum with a multilingual and multicultural learning environment, and there is evidence that they are not adhering to the requirements of LiEP[25] (Mashiya, 2011).

The challenge is particularly evident in second-language learning where research has shown that learners from homes where English is the home language, and where they are exposed to the cultural rituals that comprise formal schooling, have an advantage over learners

[25] LiEP (Language in Education Policy)

from less privileged homes and where English is a foreign language (Brice Heath, 1983; Du Plessis & Louw, 2008).

When asked how children learn, six teachers (43%) noted that the home background was important and only two teachers (14%) mentioned building on existing knowledge. This was at odds with what was observed in the classrooms where drawing from existing knowledge was the most used pedagogic mode, but there was little evidence of acknowledging the learners' individual backgrounds. The only official time given to such activity was the Monday morning news ring in which learners were asked to share an aspect of their news with the rest of the class, and one learner's sentence was chosen for everyone to write in their news books. Ekpe & Egbe's (2005) work demonstrated the benefits of drawing from learners' existing knowledge and developing their own books as a means to make learning meaningful, less stressful and appropriate for second-language learners. It could, therefore, be argued that, while the teachers have the right idea by drawing from learners' existing knowledge at news time, this needs to be implemented so as to allow each learner to build her own news book rather than having to adopt someone else's sentence, and for the process to be scaffolded at an individual level so as to set new goals for each learner.

Most of the learners had entered Grade One unable to read, but owing to their home circumstances, varied considerably in their levels of existing knowledge. In the more privileged homes, learners had been exposed to regular story times, outings and access to resources that would promote reading (cf. Kim, Kang & Pan, 2011). This meant that they already had a foundation of literacy learning that would make the transition into fluent reading a relatively easy step as they already understood, or had been primed for, the expectations of the classroom culture (Brice-Heath, 1983). Consequently, the entry level of learners from Schools 1 and 4

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were generally higher than in Schools 2, 3 and 5. The variety of home backgrounds meant that the learners' entry levels became an unexpected confounding/masking factor in the literacy test results (see Figures 5 and 11, p. 144 & 154). Notwithstanding this phenomenon, learners in under-privileged schools performed above expectations, irrespective of limited resources and high class numbers. This suggests that at least some South African teachers in under-privileged schools are using pedagogic tools in an appropriate and skilful manner.

From less privileged homes, learners entered the school setting having to learn in a language other than their home language, had limited or no access to books, and had largely not enjoyed stimulating outings or one-on-one attention from literate adults (Bloch, 2006; Muthivhi 2010). The notable exception to this was the few French-speaking learners who were present in Schools 2, 3 and 5 (all less privileged schools) and most of whom entered Grade One already able to read fluently. Discussion with said learners revealed that this was as a direct result of a conscious decision on the part of their parents who appeared to have taught their children to read from an early age.

In most instances, the teachers used these pupils to model reading to their peers, but did not appear to extend their reading beyond their having limited access to the books in classroom libraries. Consequently it was not advantageous for these learners to be substantially ahead of their peers as they were inclined to get bored during general reading activities because they were not engaged in alternative and more challenging tasks, or in assisting their peers to read. The policy of standardized, uniform education was clearly not catering for the individual needs of more advanced learners.

Validation of the cultural backgrounds of learners, and their capacity to feel comfortable in their learning environments, are directly linked to the choices made by teachers with regard to

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teaching resources. Bloch (2006), Muthivhi (2010), Oller (2007) and Linehan (2004) described the difficulties faced when dealing with second-language learning without appropriate reading materials, under-developed evolution of an African language, and with teachers whose own language skills are inadequate.

With 53 (42%) of the learners listed as English speaking; 45 (36%) Afrikaans speaking and 28 (22%) speaking a variety of African languages, the cultural mix was fairly complex (Table 2, p. 132). The promoted classroom culture and medium of instruction was English, which was seen in the choice of basal readers, box books, posters and worksheets (Table 22, p. 217). There was the occasional token gesture of an illustration or use of an African name, and only one teacher was observed to read an Afrikaans book over the six-month research period. Interviews revealed that eight teachers (57%) considered the basal reader the most important resource available to them, consequently the choice of reader would be relevant. The series of readers chosen was the "Oxford Reading Tree" and featured characters such as "Biff, Chip and Floppy". None of these characters were culturally appropriate to children learning to read in a South African classroom because their names are unfamiliar and contextually the characters appear to be very British.

The standard of English displayed by the teachers, in general, varied from reasonable to a style of code switching between Afrikaans and English with neither language being used correctly. Sithabile & Bonakele (2010) and Du Plessis & Louw (2008) suggested that code-switching is generally ineffective and that making use of more capable second-language peers, older learners or teacher assistants, yielded positive results. The success of such a programme would lie in formalizing it to allow for consistent interaction.

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A number of teachers took it upon themselves to make use of an older learner who spoke the language of a learner who was struggling. This was, however, more the exception than the rule, not observed during the research period and conveyed only in conversation during the interviews. At no stage did the researcher see a teacher make use of an African language in her teaching.

The lack of formal structures to assist teachers when dealing with second-language learners was minimally addressed by means of a parent programme that was introduced to inform parents on how to assist their child with the expectations of Grade One literacy. The relationship between teachers, learners and parents appeared to have a positive impact on those learners whose parents supported the learning process (Figure 2, p. 135). When teachers indicated that a child might need additional support, sent home supplementary work and communicated positively with parents, the child undoubtedly benefitted. This was seen with a number of learners who made exceptional progress in reading and comprehension (Figures 2 and 8, p. 135 & 146). This indicates that the role of the parent is crucial and supports Vygotsky's theory that each child brings to the learning environment their socio-cultural history that shapes how they learn (Mamabolo, 1997; Hedegaard, 2001). If teachers acknowledge the role of parents, they validate the learners' backgrounds and continue to build on learners' existing knowledge that has its source in their socio-cultural influences.

6.3 Effective mediation

6.3.1 Rote learning and practicing a concept

Rote learning in this research was defined as when "the teacher employs verbal repetition of words and concepts by the learners to facilitate memorization". Muthivhi & Broom (2009)

described traditional methods of pedagogy as centred around rote learning with little attention given to development of thinking and reasoning. Vygotsky made a distinction between spontaneous concepts and formal schooled or scientific concepts. He put forward the idea that, in the home environment, learners acquire a variety of spontaneous concepts which they bring to the learning environment. Scientific concepts do not specifically refer to science, but rather denote a formal structure which relates to knowledge systems, such as the alphabet, which allow for reading to take place. In a school setting, the learner begins a prolonged process of understanding. Scientific concepts cannot simply be learnt through concrete experiences or direct memorization as is the case with spontaneous concepts, but rather through a deep understanding whereby abstract thinking is developed and leads to generative knowledge (Vygotsky, 1962, 1978, 1981).

This research showed that both a level of memorization and abstract concept development are necessary. For example, Mrs P. and Mrs K. made use of the mechanics of rote learning which contributed toward significant positive results (Table 4, p. 138). Mrs D.J., with open-ended discussion around potentialities, promoted problems-solving skills that were reinforced with aspects of repetition (Extract 6, p. 187). It can, therefore, be argued that while Vygotsky is correct in that there is movement from spontaneous concept acquisition to more formal and abstract thinking, there is also a place for pure memorization. Vygotsky would suggest that what is being learnt is not scientific concepts as such but is rather the practicing of a concept. However, rote learning should not be the only means of learning and should be complemented by practice of a concept to facilitate comprehension.

Vygotsky proposed that having the opportunity to practice a concept is an important aspect of learning as it allows the learner to internalize new learning. Practicing a concept was one of

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the top four pedagogic modes evidenced in the film footage, so teachers did provide opportunities for learners to practice new learning, but, as in the case of collaborative learning, this did not take place in a purely Vygotskian manner.

In this research, practicing a concept was defined as "the teacher designs activities to use and practice new skills to allow for internalization." Vygotsky saw practising a concept as learners being afforded opportunities to work with a new concept in a scaffolded manner and in a variety of contexts until such time as they can internalize new learning (Van de Pol, Volman & Beishuizen, 2010). What was observed, however, was rather memorization through rote learning and repetition, together with smart-board exercises or worksheets that required learners to begin to use new concepts, but in a limited fashion. As in the case of class discussions, worksheets or smart-board exercises did not extend the learners, but rather dealt with what was already known using information extracted by means of closed ended questions. Little scaffolding of learning took place and limited to no use of the individual ZPD was evident.

Mrs P., who achieved the most statistically significant learner result for reading, was the exception in how she used rote learning and practice of a concept, because she began her lessons by defining a concept, and provided her learners with examples, and then gave them the opportunity to practice the concept using a cultural tool, the smart-board, that they could identify with (Extracts 2 and 3, p. 174 175). For example:

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Extract 2: *Rhyming lesson by Mrs P.*

T: "G" is for girl; "g" is for goat; "g" is for goose in my boat. (learners shout the rhyme in unison) Let us all say 'goose'. In my boat.….
L: In my boat (learners in unison)
T: Right (learner's name) which words rhyme?
L: goose and….goat.
T: Listen, listen…goose…goat (touches her ear to indicate listening) It doesn't sound right. (points to another learner with their hand up) Yes, my boy.
L: girl and goose
T: Girl…goose…it begins with the same sound but…(points to another learner with their hand up).
L: Girl and goose

Extract 3: *Mrs P. illustrating a concept with rhyming words and a smart-board.*

T: (circles 'fox') Fox doesn't belong here. Right (learner's name), will you come and ring the odd one in this one? Come (learner's name) 'jam, jug, pram, dam'.
(learner comes up to smart board)
T: Which one do you think is the odd one? 'Jam, jug, pram, dam.' 'jam, jug, pram, dam'. Which one is odd? (teacher points to each word as she says it with emphasis).
(learner rings the word 'jug')
T: Right, good, thank you.

Although she made extensive use of repetition to aid memorization, she consciously mediated through the use of semiotic tools such as the language of mediation, smart-board, rhyming words and vowels (Vygotsky, 1978; Dixon-Krauss, 1996). This facilitated learning within a variety of opportunities to practice the new concept. By memorizing sight words, basic alphabet and initial sounds, the teacher provides a foundation upon which learners can read and begin the process of comprehension. This is because learners do not have to be distracted by the mechanics of decoding disconnected pieces of information, but can rather draw from their knowledge of sight words or initial sounds to surmise what a sentence may mean. In this way, learners' behaviour is transformed through their exposure to consciously mediated collaborative learning and the use of cultural tools.

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Rote learning has long been criticized as mindless learning and has often been over utilized in South African schools that are less privileged (Pretorius, 2000; Muthivhi & Broom, 2009). It can, however, be argued from this research that it has a role to play when the teacher consciously uses the language of mediation which guides the learner with clues to understand a new concept. When this is coupled with opportunities for concrete consolidation through practicing a concept embedded in a culturally appropriate tool for learning, such as a smart-board, learners have the potential to learn. Mrs P. provided spaces in her mediation for problem solving, concept development and consequently comprehension. This was not a mindless repetition of rhyming word, but rather a combination of committing something to memory while establishing thinking and reasoning. Furthermore, there are aspects of reading, such as sight words, that simply have to be memorized because their structure does not allow the learner to decode them through the process of "sounding out". By practicing these words with the use of flash cards and word lists, Mrs P. and Mrs K. provided their learners with a memory bank from which to draw when reading a new text.

Mrs P. was however the exception in the research demographic. The present research revealed French second-language learners who entered the schooling environment reading fluently, struggled with the comprehension of texts. This may have been the result of conflict teachers experience between providing the learner with a solid foundation in the mechanics of reading and allowing for opportunities to explore the comprehension of a text. Muthivhi & Broom (2009), Bloch (2006) and Bloch, Stein & Prinsloo (2001) all suggested that teachers place too much emphasis on the mechanics of reading and omit to develop comprehension and problem-solving skills. Clay & Cazden (1993) and Pretorius (2000) stated that it is preferable to integrate whole-language literacies with the formal elements of reading in order to allow learners

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to expand their existing knowledge to include fledgling reading skills. The present research revealed that, while the teachers got some positive results in reading, comprehension and problem solving, the teachers with the most significant results used their pedagogic modes in a relatively conscious, deliberate manner, thereby increasing the potential for learning at a deeper level.

If rote learning were the only pedagogic mode used, or even the primary mode, then comprehension would be unlikely to develop (Karpov, 2003). Its place in the pedagogic toolkit should be acknowledged, but it should be used appropriately and consciously.

6.3.2 Smart-boards as tools for mediation

The Vygotskian (1978) perspective recommends the use of cultural historical tools that shape how we think in moving from lower mental functions to higher mental functions. When teachers use explicit mediational tools, such as a game on a smart-board, children may initially be confused, but through explicit mediation they become familiar with the alphabet within a particular context, thus promoting the development of higher mental function. Whilst the smart-board may be a modern and visually stimulating means of presenting reading and comprehension, at its core is the alphabet which has been historically transferred (Stetsenko & Vianna, 2009).

Prinsloo & Walton (2008) observed that simply providing technology as a teaching resource does not guarantee improved learning. This was seen in this research project in that 11 teachers (79%) had smart-boards in their classrooms, but the most successful teachers, based on learner results, namely Mrs P., Mrs H. and Ms D.J., made use of them in a consciously mediated fashion. Mrs P. and Ms D.J.'s styles of conscious mediation have been discussed, (see Findings

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p. 174-185 & 188-194) but it is by focussing on Mrs H., who got the most significant comprehension results, that we get further insight into mediation.

As a young second-year teacher she had embraced the new technology of a smart-board as her primary tool for mediation. In her interview, she appeared to feel that the smart-board could answer all the learning needs of her learners. As a result she spent a significant amount of time every day showing the learners letters, three-letter words, and songs and rhymes on the board and asking them to respond to questions posed by the smart-board. Her predominant pedagogic mode was use of existing knowledge, with rote learning her least used mode (Table 14, p. 181). The learners were required to not only respond to questions posed by the smart-board, but to play games that would reinforce their knowledge of vowels, phonics and sight words (Extract 5, p. 185). Much like Mrs P. and Mrs K., she essentially made use of a form of memorization, but used it through "play" when allowing her learners to identify words, vowels and consonants, in a computer-generated game. She was the only teacher who used her smart-board in this way, while the others used it to project a "worksheet" style template from which the teacher would ask closed-ended questions or fill in a word that was written on the board by the teacher or learner. But how could Mrs H's approach assist in development of comprehension skills?

Comprehension of a text was promoted through learning skills such as prediction, sorting of information and making inferences (Harrison, 2014; Dixon-Krauss, 1996). Mrs H. required her learners to engage with the material by problem solving within a game of collating a three-letter word, identifying a sight word and constructing a sentence. The learners were having to draw from their existing knowledge and practice answering questions. Brown & Cole (2000) demonstrated how using a culturally appropriate tool, together with active participation on the part of the teacher and learners, can facilitate teaching and learning. It could be argued that

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learners relate better to the use of technology because of its popularity and in-fashion cachet, and therefore it draws from their cultural background, providing a familiar platform for learning in a technological age. Because the learners enjoyed playing the games and singing along, they were motivated to listen and develop the skills of comprehension. Further research in this mode of pedagogy would yield more concrete evidence that could confirm these observations.

6.3.3 Conscious mediation

Vygotsky (1978) described the mediational process as being goal-directed conscious activity in which the educator creates an environment that is conducive to learning. Karpov (2005) regarded conscious mediation as essential to successful teaching and learning. By this he meant that the teacher is actively aware of how she is mediating, is flexible in her approach and dynamically scaffolds learning to accommodate individual ZPDs. In this research, conscious mediation was defined as when "the teacher consciously assists learners to problem solve." Whilst conscious mediation was one of the four top pedagogic modes evidenced from the coding schedule, it was not observed entirely in the sense that Karpov suggested. It was similar in that the teachers appeared to have some clarity on their desired outcome, but it differed in the execution.

Conscious mediation was aligned to Karpov's (2005) concept in the context of scaffolding learning within an ability group. This was particularly evident in the pedagogic styles of Ms D.J.; Mrs G. and Mrs M., all of whom came from School 1. All three teachers featured prominently in the problem-solving results and Mrs G.'s and Mrs M.'s learners also did relatively well in comprehension (Tables 10 and 7, p. 160 & 148). Thus these teachers' pedagogic styles could be significant.

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Wood (2001) suggested that teachers can do a number of things when consciously mediating. For example: focusing the learners attention on a salient point, reminding learners to use their existing knowledge to problem solve, providing positive feedback, and suggesting logical steps in a given task. All three teachers used a constructivist approach to establish a joint understanding of a text. They began by determining the individual learners' base line within their ZPDs through the use of probing questions within the context of ability groups. However, they continued to move beyond the baseline by challenging the learners to look at pictures in a reader to identify word meaning, use an initial sound or sound out a word, referred learners to prior knowledge or encouraged learners to try to read a sentence using the knowledge they had just acquired. In this way, learners were stretched to work with their potential knowledge and to gain confidence in their new abilities with the support of their teacher.

Other than the aforementioned three teachers, most teachers did not accommodate individual ZPDs and frequently resorted to a formulaic approach. Individual goals and ZPDs were not established and limited scaffolding took place. This was particularly evident in attempts at group work where learners were not consciously mediated into how to work collaboratively; teachers assumed that learners should simply know how to achieve this and were surprised or disillusioned when the activity did not succeed. This led them to believe that the learners were simply too immature to work in this manner and, consequently, either avoided group work entirely, used it infrequently, or reserved it for later in the year when learners were deemed mature enough to succeed (Table 16, p. 199). Conscious mediation in this type of teaching and learning context was, therefore, a case of teachers having a conscious goal in mind for the class as a whole, but lacked sufficient understanding to implement it successfully.

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6.4 **Conclusions**

Stetsenko & Vianna (2009) emphasized that it is important to test a theory in order to reflect on its relevance in practice, and with a view to reviewing the theory critically. This research has done this in that it has looked for evidence of a Vygotskian approach to pedagogy, with a view to evaluating its efficacy in practice. The four most frequently used modes were: use of existing knowledge, collaborative learning, practicing a concept and conscious mediation. All four drew on a Vygotskian framework, but were not used in a manner that could be characterized as well developed or expert. This points to the fact that, while it is appropriate to have a pedagogic ideal, the practice will always diverge from the ideal as a result of the contexts of teaching and learning and the professional characteristics of educators.

In the sampled schools, teachers struggled to see collaborative learning as something beyond teacher-directed discussion with the class, prompted by a big book or smart-board. Use of existing knowledge meant simply confirming, through closed-ended questions, what was already known, but not using this as a platform for acquiring new knowledge. Generally, practicing a concept was seen as reading a memorized sentence, cutting and pasting in a workbook or worksheet, and responding to questions posed by a teacher. Using the newly introduced concept independently, or with the assistance of a peer, rarely occurred. Thus learners did not fully establish what they did not know or how to potentially move beyond the known, but rather remained on the level of the known. Conscious mediation was evident in terms of mediation within an ability group setting where the teacher would scaffold learning. The teachers' responses to perceived challenges of peer-peer social learning showed that they viewed it as problematic. Additional perceived challenges, as voiced in interviews, were centred around provision of individual scaffolded learning. As a result, it can be concluded that, while

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Vygotsky's theories of learning are recognised as potentially effective, the reality is that teachers feel controlled by their curriculum, class numbers, time constraints and a lack of understanding of how to provide spaces for individual instruction. However, teachers who achieved above average results generally did use Vygotsky's principles of learning in more effective ways that enabled learners to develop the mechanics of reading, comprehend texts, and explore the possibilities of problem solving.

This research highlights the fact that a variety of pedagogic modes and teaching styles can bring about positive results, irrespective of socio-economic context. Although most of the teachers made use of at least eight of the ten defined modes, it was the combination of the modes together with certain specific approaches developed by individual teachers that appeared to yield the best results. The teachers that allowed for consolidation of learning around phonics and sight words, helped their learners to build a foundation of knowledge that facilitated reading. The teachers who made use of discussion with open-ended questions that lead to a genuine use of existing knowledge, helped their learners to build on existing knowledge and to develop problem-solving skills. The teachers who made use of new technology in the context of play, such as a smart-board game, to consciously mediate, provided opportunities to practice new learning and to develop comprehension skills. Each of these individual approaches showed that, irrespective of curriculum or socio-economic context, children learn from the pedagogic modes adopted by the teacher and her ability to adapt her pedagogy to meet the needs of her learners.

This research contributes to the understanding of how children learn and how best to teach them together with providing a research tool that allows the researcher to map through a cultural historical lens, the teaching of reading at foundation phase.

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6.5 A socio-cultural model for reading pedagogy in Foundation Phase

These research results indicate that tools for learning suggest that a socio-cultural model for reading pedagogy should include the following:

- Use of opportunities for social dialogue that promote problem solving with a teacher who poses open-ended questions.
- Repetition and rote learning of knowledge bases that, out of necessity, have to be memorized, so that learners build a foundation of literacy knowledge.
- Learning through play, whereby learners can not only enjoy the experience of learning, but are actively engaged in the process of learning, either through the use of familiar media (such as a smart-board) or games that permit the development of social skills and respect for rules.
- Scaffolded learning within ability groups allows the individual to identify what is not known and, with the support of a teacher or peer, promotes movement to the next level of understanding.
- Perhaps most important of all, is a classroom environment that allows for learners to communicate with one another, for it is through dialogue that learners communicate what is known, question what is not known, and internalize new knowledge (Vygotsky, 1986).

At the forefront must be a recommendation of quality over quantity. A tendency for perceived time constraints in the CAPS (2011) curriculum to promote a standardized, formulaic, "sausage-machine" approach to literacy education, is problematic. An approach that takes cognisance of the individuality of teaching and learning contexts was lacking in the research sample, and appears to be symptomatic of a standardized, "one-size-fits-all" philosophy of education. Teachers did not feel free to take time to explore existing knowledge and to build on

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it. Teachers must be encouraged to find opportunities for individual ZPDs to be established and for the individual potential of learners to be realized. By taking time to consciously mediate in peer-peer collaboration, teachers can promote valuable discussion around concepts and practice of new concepts (Harrison 2011).

Literature that was reviewed in this dissertation shows that a Vygotskian approach is beneficial, but, in practice, teachers need support and training in methods of implementation. This can be achieved by means of interventionist research that is used to develop practical workshops and mentoring strategies that address the specific needs of teachers working within a range of socio-economic and cultural contexts.

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Appendixes

1. Coding schedule
2. Research tools.
3. Original transcript for Mrs H.

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CODING SCHEDULE

Teaching Modes	Empirical Indicators	Code present	Lesson number 1	Comment	Code present	Lesson number 2	Comment	Code present	Lesson number 3	Comment	Totals
ZPD	Questions										
	knowledge based questions (K1)										
	knowledge based questions: (K2)										
	Guiding questions										
	Rhetorical questions										
	Responses										
	What learner knows										
	what learner doesn't know										
	What question learner asks to show what they do/don't know										
	Assessment										
	Dynamic assessment										
	Formal assessment										
	Informal assessment										
	Mediation										
	Definition of scientific learning										
	Explanation of scientific learning										
	Concrete Consolidation										
	Lanugage of mediation (academic)										
	Developmentally appropriate										

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	Types of activities- assisted/unassisted
	Task Orientation 1. (Goal setting)
	Task Orientation 2. (regulation)
	Response to support - accepted/rejected.
Collaborative learning	Questions
	knowledge based questions (K1)
	knowledge based questions: (K2)
	Guiding questions
	Rhetorical questions
	Responses
	What learner knows
	what learner doesn't know
	What question learner asks to show what they do/don't know
	Assessment
	Dynamic assessment
	Formal assessment
	Informal assessment
	Mediation
	Definition of scientific learning
	Explanation of scientific learning
	Concrete Consolidation
	Lanugage of mediation (academic)
	Developmentally appropriate
	Types of activities- assisted/unassisted
	Task Orientation 1. (Goal setting)
	Task Orientation 2. (regulation)
	Response to support - accepted/rejected.
Practicing of concept	Questions
	knowledge based questions (K1)
	knowledge based questions: (K2)

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	Assessment	
	Dynamic assessment	
	Formal assessment	
	Informal assessment	
	Mediation	
	Definition of scientific learning	
	Explanation of scientific learning	
	Concrete Consolidation	
	Lanugage of mediation (academic)	
	Developmentally appropriate	
	Types of activities- assisted/unassisted	
	Task Orientation 1. (Goal setting)	
	Task Orientation 2. (regulation)	
	Response to support - accepted/rejected.	
Conscious Mediation	Questions	
	knowledge based questions (K1)	
	knowledge based questions: (K2)	
	Guiding questions	
	Rhetorical questions	
	Responses	
	What learner knows	
	what learner doesn't know	
	What question learner asks to show what they do/don't know	
	Assessment	
	Dynamic assessment	
	Formal assessment	
	Informal assessment	
	Mediation	
	Definition of scientific learning	
	Explanation of scientific learning	

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	Concrete Consolidation
	Lanugage of mediation (academic)
	Developmentally appropriate
	Types of activities- assisted/unassisted
	Task Orientation 1. (Goal setting)
	Task Orientation 2. (regulation)
	Response to support - accepted/rejected.
Use of existing knowledge & Cultural tools	Questions
	knowledge based questions (K1)
	knowledge based questions: (K2)
	Guiding questions
	Rhetorical questions
	Responses
	What learner knows
	what learner doesn't know
	What question learner asks to show what they do/don't know
	Assessment
	Dynamic assessment
	Formal assessment
	Informal assessment
	Mediation
	Definition of scientific learning
	Explanation of scientific learning
	Concrete Consolidation
	Lanugage of mediation (academic)
	Developmentally appropriate
	Types of activities- assisted/unassisted
	Task Orientation 1. (Goal setting)

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	Task Orientation 2. (regulation)
	Response to support - accepted/rejected.
Rote Learning	Questions
	knowledge based questions (K1)
	knowledge based questions: (K2)
	Guiding questions
	Rhetorical questions
	Responses
	What learner knows
	what learner doesn't know
	What question learner asks to show what they do/don't know
	Assessment
	Dynamic assessment
	Formal assessment
	Informal assessment
	Mediation
	Definition of scientific learning
	Explanation of scientific learning
	Concrete Consolidation
	Lanugage of mediation (academic)
	Developmentally appropriate
	Types of activities- assisted/unassisted
	Task Orientation 1. (Goal setting)
	Task Orientation 2. (regulation)
	Response to support - accepted/rejected.
Didactic Teaching	Questions
	knowledge based questions (K1)
	knowledge based questions: (K2)
	Guiding questions
	Rhetorical questions

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	Responses	
	What learner knows	
	what learner doesn't know	
	What question learner asks to show what they do/don't know	
	Assessment	
	Dynamic assessment	
	Formal assessment	
	Informal assessment	
	Mediation	
	Definition of scientific learning	
	Explanation of scientific learning	
	Concrete Consolidation	
	Lanugage of mediation (academic)	
	Developmentally appropriate	
	Types of activities- assisted/unassisted	
	Task Orientation 1. (Goal setting)	
	Task Orientation 2. (regulation)	
	Response to support - accepted/rejected.	
Worksheet based	Questions	
	knowledge based questions (K1)	
	knowledge based questions: (K2)	
	Guiding questions	
	Rhetorical questions	
	Responses	
	What learner knows	
	what learner doesn't know	
	What question learner asks to show what they do/don't know	
	Assessment	
	Dynamic assessment	

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Developmentally appropriate	
Types of activities- assisted/unassisted	
Task Orientation 1. (Goal setting)	
Task Orientation 2. (regulation)	
Response to support - accepted/rejected.	

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Research Tools

The following research instruments will be used.

(1) Research Instrument 1: Teacher interview – pre-observations.

(2) Research Instrument2: Teacher interview – post-observations.

(3) Research Instrument3: Learner information.

(4) Research Instrument 4: Dog and ball baseline assessment.

(5) Research Instrument 5: Coding Schedule.

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Research Instrument 1 Teacher Interview One

About this instrument

- This instrument is designed to elicit information from the teachers about their current attitudes and approaches to teaching reading in Grade One.
- The respondent should be the Grade One teacher whose class has been observed to describe pedagogic techniques.
- The respondent should be a Grade One class teacher who is involved in the teaching of reading in either a former Model C school or a less privileged school.

How to complete this instrument

- This instrument should be completed by the researcher at the beginning of the research period.
- The researcher must interview the Grade One teacher at a time considered suitable by both parties.
- The researcher will film the interview with the permission of the participant.

Date of interview		Home language:
School name		
Name of respondent		
Years of teaching experience total and at this school	Total At this school: Total taught in other grades & what grades:	
Highest qualification		
Institution from which you received qualification		

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1. If a new teacher asked you to describe how you would teach a child to read, what are the most important techniques you would suggest she use? Explain why. List/describe
2. What do you find the most challenging about teaching reading in your school? List/describe
3. What opportunities do you provide, and/or are available to you, to assist the learners to practice their reading skills? List & score: 0.1.2
4. Have you ever made use of collaborative learning as a teaching style? If yes, describe how you used it and why. Describe & score: 0.1.2
5. What resources do you currently use the most when teaching your learners to read and why do you consider them important/useful? List & score: 0.1.2.
6. How do you think children learn, in other words, how do they acquire knowledge and skills? List/describe
7. Do you make use of the learner's existing knowledge when introducing a new concept? If yes,

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explain how you do this. Describe & score: 0.1.2.
8. Do you consider it important to set goals for your learners? If yes, give an example of the type of goals you set and how you help your learners to achieve them. Describe & score: 0.1.2.
9. How would you teach problem-solving skills in your classroom? Describe & score: 0.1.2.
10. Do you consider it important to recognize and cater for the individual needs of the learner? If yes, explain how you achieve this. Describe & score: 0.1.2.
11. Explain how, in your classroom, you support/help a learner who is experiencing difficulties grasping the basic concepts of reading. Describe & score: 0.1.2
12. Is there anything else you would like to say about your approach to teaching children how to read? General comments.

Adapted from SPADE Project 2012

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Field Notes: use for any observations made during interview.

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Research Instrument 2 Teacher Interview Two

About this instrument

- This instrument is designed to elicit information from the teachers about their attitudes and approaches to teaching reading in Grade One after they have completed their observation lessons.
- The respondent should be the Grade One teacher whose class has been observed.
- The respondent should be the same Grade One class teachers who participated in Interview One and who are involved in the teaching of reading in either a former Model C school or a less privileged school.

How to complete this instrument

- This instrument should be completed by the researcher at the end of the research period.
- The researcher must interview the Grade One teacher at a time considered suitable by both parties.
- The researcher will film the interview with the permission of the participant.

Date of interview		
School name		
Name of respondent		
Years of teaching experience total and at this school	Total at this school: Other Grades taught & number of years:	
Highest qualification		Home Language:
Institution from which you received qualification		

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1. If a new teacher asked you to describe how you would teach a child to read, what are the most important techniques you would suggest she use? Explain why. List/describe
2. What do you find the most challenging about teaching reading in your school? List/describe
3. What opportunities do you provide, and/or are available to you, to assist the learners to practice their reading skills? List &Score: 0.1.2.
4. Have you ever made use of collaborative learning as a teaching style? If yes, describe how you used it and why. Describe & score: 0.1.2.
5. What resources do you currently use the most when teaching your learners to read and why do you consider them important/useful? List & score: 0.1.2.
6. How do you think children learn, in other words, how do they acquire knowledge and skills? List/describe
7. Do you make use of the learner's existing knowledge when introducing a new concept? If yes, explain how you do this. Describe & score: 0.1.2.
8. Do you consider it important to set goals for your learners? If yes, give an example of the type of goals you set and how you help your learners to achieve them. Describe & score: 0.1.2.

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9. How would you teach problem-solving skills in your classroom? Describe & score: 0.1.2.
10. Do you consider it important to recognize and cater for the individual needs of the learner? If yes, explain how you achieve this. Describe & score: 0.1.2.
11. Explain how, in your classroom, you support/help a learner who is experiencing difficulties grasping the basic concepts of reading. Describe & score: 0.1.2.
12. Is there anything else you would like to say about your approach to teaching children how to read? General comments.
13. How did you experience being observed and videoed?
14. Did you modify your teaching style at all as a result of being observed?

Adapted from SPADE Project 2012

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Research Instrument 3 Learner Information

About this instrument

- This instrument is designed to elicit information about the stratified sample of learners.

This information may affect the learners' results on the basal tests.

- The respondent should be one of the participants chosen by the researcher from the stratified sample of 9 learners, pertaining to the Grade One classes being studied.
- **How to complete this instrument**
- This instrument should be completed by the researcher at the time of issuing the basal test.
- The researcher will obtain some of the information from the class teacher or school records.
- All information will be kept confidential.
- The researcher may deem it necessary to consult with the participants remedial support educator.

<table>
<tr><td colspan="2">Date of Basal Test 1.</td><td colspan="2">Date of Basal Test 2.</td></tr>
<tr><td colspan="2">School name</td><td colspan="2"></td></tr>
<tr><td colspan="2">Name of respondent</td><td colspan="2"></td></tr>
<tr><td>Attended preschool: Yes/No</td><td>No. of years in preschool:</td><td>Age:</td><td>Home Language:</td></tr>
<tr><td colspan="2">Remedial intervention: Y/N
What type if Yes:
Current & how long:</td><td>Race:</td><td>Reading Group:
Top/Middle/Bottom</td></tr>
<tr><td colspan="2">Any additional information:</td><td colspan="2"></td></tr>
</table>

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Research Instrument 4 Learner Basal Test

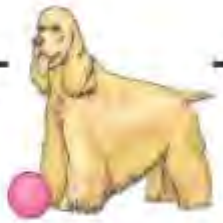
About this instrument:

- This instrument will be used by the researcher to determine the initial baseline level of literacy and will be applied at the beginning of the second school term of 2013.
- This instrument will test for reading ability; comprehension; writing of sentences and basic phonics. These different areas will be assigned separate scores to help determine if particular pedagogic techniques yield results in specific areas of literacy. An overall mark will also be scored.
- The same test will be applied at the end of the second term and used to compare results between the first application of the basal test and the second, to ascertain the efficacy of pedagogic techniques.

How this instrument will be used:

- This instrument will be managed by the researcher who will work individually with the stratified sample of 9 learners per observed class.
- Learners will take the test on an individual basis with the researcher present.
- Should a learner struggle to read a question, the researcher will assist but this will be noted on the form.
- The selection of learners will be guided by the teacher's reading groups and in consultation with the class teacher.
- The same learners who took the first basal test will take the second basal test.
- The same test will be applied in both instances.

Name: _____



A Ball For My Dog

by Stephenie Hovland

My dog found a ball. It was a yellow ball. My dog loves to chew. He chewed the yellow ball.

My dog found another ball. It was a red ball. My dog loves to play. He played with the red ball.

My dog found another ball. It was a blue ball. My dog loves to run. He ran after the blue ball when I threw it.

I need to find another ball for my dog. What color should it be? What will my dog do with the next ball?

Name: _____

A Ball For My Dog

by Stephenie Hovland

1. How many balls did the dog find?

_____

2. What color was the ball that the dog played with?

_____

3. What did the dog do with the yellow ball?

_____

4. What did the dog do with the blue ball?

_____

Super Teacher Worksheets - www.superteacherworksheets.com

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Name: _____

A Ball For My Dog

by Stephenie Hovland

What color do you think the next ball will be?

_____

Write a sentence that tells what the dog does with the ball.

_____

_____

Draw a picture of the dog playing with the ball.

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ANSWER KEY

A Ball For My Dog

by Stephenie Hovland

1. How many balls did the dog find?

   three

2. What color was the ball that the dog played with?

   He played with the red ball.

3. What did the dog do with the yellow ball?

   He chewed the yellow ball.

4. What did the dog do with the blue ball?

   He ran after the blue ball.

Super Teacher Worksheets - www.superteacherworksheets.com

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Extract 5: *Mrs H.'s use of existing knowledge in Afrikaans lesson.*

Context: Mrs H. began the lesson by using a big book and getting the learners to read with her in Afrikaans. She then went on to use the smart-board and to call up individual learners to identify and label the various body parts. Finally the learners made use of a worksheet to build a body in their work books.

T: We are going to stop talking now. We are waiting for (learner's name) to sit down. Please put your juice bottle away. Come out of the corner and we are not shouting out. Right (teacher holds up the 'big book' and points to the words as the class collectively reads the book with her.
L: Kyk na my (class reads the sentence in unison)
T: What does that mean…hands up?
L: Look at me.
T: Look at me.
L: Kyk na my bal (in unison)
T: Who is shouting out?
L: Kyk hoe speel ons.
T: Look how we are playing. Ok let's do this one. (teacher sets up the smart board with labels and an image of a person. Wat is dit? What is this? (teacher points to the different body parts as she asks the questions).
L: Dit is my vinger. (in unison)
(teacher puts up a finger)
T: Wat is dit?
L: Dit is my been. (in unison)
T: Good. Wat is dit?
L: Dit is my voet. (in unison)
T: Wat is dit?
L: Dit is my kop. (in unison)
T: Wat is dit?
L: Dit is my arm. (in unison)
T: Wyse vir my jou vinger. Waar is jou vinger? Dit is my…(waggles her index finger)
(learners touch their fingers.)
T: Wyse vir my jou been.
(learners touch their leg)
T: Wyse vir my jou voet.

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(learners touch their feet)
T: Now let us see who is behaving very nicely. (learner's name) go label that man and put the word 'kop' next to the 'kop'.
(learner comes to the front of the class)
T: Pick up the word 'kop'. Hang on you haven't got it. Click on it. Drag it up. Put it just next to the arrow there so you can see it. (learner can't reach so teacher does it for her)
T: Thank you. (teacher chooses another learner) Go put the word 'been' next to the body. Where is 'been'? (learner struggles to reach label) Put is next to the arrow. Here…(teacher drags it to the label learner is trying to reach).
(Teacher continued to call up learners to label the body parts on the smart board. Most learners easily identified the correct label for each body part but they struggled to use the smart board.)

Research supported by SPADE, Dorothy Spillman and NRF free-standing bursaries.

Letters of consent

1. Letter to Participants
2. Letter to Parents

Research supported by SPADE, Dorothy Spillman and NRF free-standing bursaries.

Letter of Introduction and Informed Consent Form For Teachers

Study Title: Tools for learning: a socio-cultural analysis of pedagogy in early reading competency in children's ZPD

Researcher: Mrs Giulietta Harrison

Before agreeing to participate in this research, I encourage you to read the following explanation of this study. This statement describes the purpose and procedures of the study.

Explanation of Procedures

This study is designed to describe the ways in which Grade One teachers teach literacy with a view to identifying 'tools for learning' which from a socio-cultural perspective, are considered effective. I am conducting this study to learn more about pedagogic styles in foundation-phase classrooms and what facilitates reading competency in Grade One. Participation in the study involves my informally observing your teaching in the first term of 2013, two videoed interviews that asks you basic questions about your specific pedagogic style and understanding of how children learn. The interviews will be conducted individually and video-taped and later transcribed for the purpose of data analysis. Three literacy lessons will be videoed in the second term of 2013. These will also be transcribed for analysis purposes.

Risks and Discomforts

There are no risks or discomforts that are anticipated from your participation in the study.
The anticipated benefit of participation is the opportunity to discuss feelings, perceptions, and concerns related to the experience of teaching literacy in a South African context, and to contribute to understanding of how children learn and how best to teach them.

Confidentiality

The information gathered during this study will remain confidential in secure premises during this project. Only the researcher will have access to the study data and information. There will not be any identifying names on the observation or interview transcripts; they will be coded and the key to the code will be kept locked away. Your names and any other identifying details will

never be revealed in any publication of the results of this study. The results of the research will be published in the form of a PhD dissertation and may be published in a professional journal or presented at professional meetings. It may also be published in book form. The knowledge obtained from this study will be of great value in guiding professionals to be more effective in teaching at Foundation-phase level.

Withdrawal without Prejudice

Participation in this study is voluntary; refusal to participate will involve no penalty or prejudice.

Research supported by SPADE, Dorothy Spillman and NRF free-standing bursaries.

Further Questions and Follow-Up

You are welcome to ask the researcher any questions that occur to you during the observations or interviews. If you have further questions once the interviews and observations are completed, you are encouraged to contact the researcher using the contact information given below. If, as a result of participating in this study you feel the need for further, longer-term support, you are welcome to contact me at harrisongiulietta@gmail.com.

If you have other questions or concerns about the study please contact my supervisors Dr A. Muthivhi, azwihangwisi.muthivhi@uct.ac.za , phone number 0216503371 or Dr J. Hardman, Joanne.Hardman@uct.ac.za., phone number 021650 3489.

I, _____ (name; please print clearly), have read the above information. I freely agree to participate in this study. I understand that I am free to refuse to answer any question and to withdraw from the study at any time. I understand that my responses will be kept anonymous.

_____ _____

Participant Signature Date

If:

(a) you would like a copy of your interview transcript once it is available

(b) you are interested in information about the study results as a whole

and/or

(c) if you would be willing to be contacted again in the future for a possible follow-up interview, please provide contact information below:

Check those that apply:

____ I would like a copy of my interview transcript

____ I would like information about the study results

____ I would be willing to be contacted in the future for a possible follow-up interview

Write your address clearly below. Please also provide an email address if you have one.

Mailing address:

Email address:

Letter of Introduction and Informed Consent Form for Parents

Dear Parents,

I am writing to ask your permission for your child to participate in a University of Cape Town PhD research project into Grade One literacy. This project will be conducted at your child's school over the course of the first and second term of 2013. I am interested in identifying teaching styles that maximize the early stages of reading competency. Your child's participation in this project will add to our knowledge of how children learn and how best to teach them.

Study Title: Tools for learning: a socio-cultural analysis of pedagogy in early reading competency in children's ZPD

Researcher: Mrs Giulietta Harrison

Explanation of Procedures

Participation in the study involves my observing your child's teacher teaching literacy lessons in the first term of 2013. Three literacy lessons will be filmed in the second term of 2013 together with 9 learners per Grade One class participating in a basic basal comprehension test to determine reading competency. These will be transcribed for analysis purposes. These tests will be given individually and filmed for analysis. The results of the tests will not be made available to the class teacher and are for research purposes only.

Risks and Discomforts

There are no risks or discomforts that are anticipated from your child's participation in the study. The anticipated benefit of participation is the opportunity to contribute to our understanding of how children learn and how best to teach them.

Confidentiality

The information gathered during this study will remain confidential in secure premises during this project. Only the researcher will have access to the study data and information. There will not be any identifying names on the observation or interview transcripts; Your names and any other identifying details will never be revealed in any publication of the results of this study. The results of the research will be published in the form of a PhD dissertation and may be published

in a professional journal or presented at professional meetings. It may also be published in book form. The knowledge obtained from this study will be of great value in guiding professionals to be more effective in teaching at Foundation-phase level.

Withdrawal without Prejudice

Participation in this study is voluntary; refusal to participate will involve no penalty or prejudice.

Research supported by SPADE, Dorothy Spillman and NRF free-standing bursaries.

Further Questions and Follow-Up

You are welcome to ask the researcher any questions that occur to you during the research period and may contact the researcher using the information given below. If, as a result of your child participating in this study you feel the need for further, longer-term support, you are welcome to contact me at harrisongiulietta@gmail.com.

If you have other questions or concerns about the study please contact my supervisors Dr A. Muthivhi, azwihangwisi.muthivhi@uct.ac.za , phone number 0216503371 or Dr J. Hardman, Joanne.Hardman@uct.ac.za., phone number 021650 3489.

I, _____ (name of parent; please print clearly), have read the above information. I freely agree to my child participating in this study. I understand that my child's responses will be kept anonymous.

_____ _____

Parent's Signature Date

Child's name: ----------

[i] The teacher allows the learners to see only the pictures in the big book and invokes responses to the pictures with a view to the learners imagining what the story is about prior to reading the words.

Research supported by SPADE, Dorothy Spillman and NRF free-standing bursaries.